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ABSTRACT

This first systemwide report on New Jersey higher education examines how well the state is meeting its goals for higher education affordability and accessibility, institutional excellence, and effectiveness in addressing societal and economic needs of the state. The six sections of the report include: (1) an introduction, which stresses the importance of higher education in fulfilling the needs of individual students and serving society, and sets forth the accountability parameters on which this report is based; (2) an overview of the state system of higher education (types of institutions, enrollments, degrees awarded, and educational attainment); (3) faculty (teaching faculty, professional development, and research faculty); (4) affordability and access (costs of attending college; how affordability affects access; programs to improve access; student preparation for college; retention, transfer, graduation and time to completion; and equality of access and success); (5) return on investment (higher education's contribution to state economic development, benefits of higher education to society, comparisons of New Jersey with other states, student satisfaction, alumni satisfaction, and employer satisfaction); and (6) a concluding section which sets out some major policy questions on access, affordability, and productivity; on equity of access and outcomes; and on undergraduate education versus research and graduate education. (Contains 47 references.) (CH)

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ED 421 923

New Jersey's Renewable Resource

A Systemwide Accountability Report

by
The New Jersey Commission
on Higher Education

April 1996

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New Jersey's Renewable Resource

A Systemwide Accountability Report

by

The New Jersey Commission on Higher Education

State of New Jersey
COMMISSION ON HIGHER EDUCATION
CN-542
TRENTON NJ 08625-0542
(609) 292-4310

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Governor

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Deputy Executive Director

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EXECUTIVE SUMMARY

For the past decade, educational policymakers have stressed the importance of institutional quality, productivity, and effectiveness. These leaders look to state-level accountability measures to guide state planning, form a context for budgetary decisions, and monitor the return on public investment in colleges and universities.

Institutional accountability is a natural consequence of institutional autonomy, a major objective in the 1994 restructuring of New Jersey's higher education system. Annual institutional excellence and accountability reports were launched in the fall of 1995 to inform the public and state policymakers about individual institutions. This first systemwide report on New Jersey higher education complements institutional reports. The document provides valuable information and opens the door for meaningful policy discussions and decisions.

New Jersey's statewide goals for higher education are affordability and accessibility, institutional excellence, and effectiveness in addressing the societal and economic needs of the state. This report provides evidence of progress in meeting these goals and informs planning efforts for future improvement. Following are some of the major issues, successes, and challenges discussed in the report:

- Data on affordability and access are measures of how effectively statewide systems respond to demand for higher education. New Jersey's relatively high tuitions are matched by generous financial aid programs, supporting the state's long-standing commitment to assist any qualified resident who lacks the economic means to pursue higher education in the state. By several measures the state ranks among the most generous in the nation in student financial assistance programs. New Jersey's strong grant programs play an important role in ameliorating somewhat the impact of the growing student indebtedness resulting from the federal move away from grants to loans. However, the growing student demand for increasingly costly grant programs poses policy questions on how to best distribute finite resources.

- Rates of student retention, transfer, and graduation, including the average time it takes to earn an undergraduate degree, are important performance indicators. New Jersey's third semester retention rate exceeds national averages. The challenge is to have the positive retention rates reflected in improved graduation rates and reduced time to degree.

- Equality of access to and success in higher education for New Jersey's neediest students, underprepared students, and minorities are often elusive. Performance indicators in these areas provide partial evidence of success in fulfilling these important state goals. Senior public institutions in New Jersey are more successful than institutions in many other states in enrolling and graduating minority students. More definitive data are needed in this area for community colleges and independent institutions. Nevertheless, there are data indicating significant differences between outcomes for minority students and those for white students in all sectors. Underprepared students also remain less likely than others to successfully complete their degrees, despite extensive opportunities for remediation at New Jersey institutions. Similarly, graduation rates are also lower for students from the lowest income brackets.

- The state's commitment to access and equality of access provides important opportunities for many state residents who might not otherwise have them. Nevertheless, there is an inverse relationship between access and graduation rates, including time to completion, which impacts the cost of education. Financial need and inadequate basic skills, factors that threaten access to higher education, also threaten academic success. In fact, maximizing access increases on average what it costs to educate students, and it negatively affects graduation rates and the average time it takes to complete a degree. Striking the appropriate balance between access and productivity is a challenge for the future.

- Roughly 285,000 undergraduates attend the state's public and independent institutions, most of whom are New Jersey residents. The majority of those students report satisfaction with their college experience. At the same time, a high proportion of residents leave the state to attend colleges and universities elsewhere, and the proportion of students from out of state attending New Jersey institutions is low. However, this long-standing atypical pattern of student migration into and out of New Jersey has had no negative effect on the educational level of the populace. In fact, New Jersey's residents have a higher than average level of postsecondary educational attainment. The lingering policy question of whether the state should attempt to alter the current higher education student migration pattern merits exploration.

- Individuals' investments in higher education are repaid through learning and enhanced career preparation that translates into higher wages and a higher standard of living. The state and its citizens benefit from cultural and community enrichment and economic development generated by higher education research, technical assistance, training, and technology transfer. Significant progress has been made by New Jersey institutions over the past 10 years in generating funding for higher education research. However, the state remains below the national average in research funding per capita. Considering the impact of university-based research on economic development, the state must determine whether additional resources for research are a priority.

- Most of the data in this first report are from fiscal year 1994 and earlier; therefore, they provide a baseline for future years. Unfortunately, performance indicators for higher education are in an early stage of formulation, and there is a need for more complete and accurate information for those indicators that exist. Consequently, future reports should use new indicators, and establish processes for producing better data. In addition, beginning with next year's report, additional cost and productivity data for each sector will help to better describe the state's return on investment in higher education.

This systemwide accountability report, along with individual institutional reports, is an initial effort and an important first step in providing information on the state's higher education system to state policymakers and the public. New Jersey's new accountability reporting system is an integral part of the restructuring of higher education and relates directly to the master planning process. Once the master plan is in place and a clearer direction is established for New Jersey's higher education system, the accountability reporting system will evolve and more completely document progress toward identified goals.

New Jersey's Renewable Resource

INTRODUCTION

A. The Need for Higher Education

Higher education across the nation and in New Jersey has two general purposes. It fulfills the needs of individual students and serves society.

Students pursue higher education for a variety of different reasons. For some, the joy and excitement of learning itself is the primary goal. Others take a course or two for self-enrichment. Some enroll at a college or university to prepare for a career or as a step toward promotion within their current work environment. Others are changing careers. Yet others seek further professionalization or an advanced degree in an area of expertise. Most learners pursue practical goals.

In addition to meeting student needs, higher education serves society through the preservation and advancement of knowledge, cultural and community enrichment, development of a spirit of civic and social responsibility, and the preparation of an educated workforce. In today's global economy, where boundaries between states or among nations are invisible, businesses make strategic decisions on where to locate depending on factors like taxes, transportation infrastructure, availability of communication technology, the cost of labor and, most important, the quality of the available workforce.

The American worker is learning that the strength of one's back is far less important than the currency and usefulness of one's knowledge. Broad knowledge and skills, effective interpersonal relations, and sophistication in the use and understanding of technology are important characteristics of successful employees.

A college or university education is a prerequisite for social mobility and for well-paid positions in most occupations. Mass education at the college and university level is a reality of the twenty-first century. Higher education is a form of renewable energy that empowers the people and the knowledge-based industries that are New Jersey's best promise for the future.

The challenge for New Jersey is clear. To compete, New Jersey must cultivate its human assets through a diverse, but integrated, higher education system that is attractive to New Jersey residents, affordable, effective, encompassing in its offerings and types of instruction, and dedicated to the development of a world-class workforce and an informed citizenry.

B. Accountability Reporting[1]

Increased accountability, as it is discussed today, became a prominent issue on campuses in the 1980s. At that time, issues concerning campus assessment of teaching and learning were debated in the context of a general interest in and concern for the quality of higher education. Accountability issues in the 1990s have been enlarged to include productivity and various measures of institutional effectiveness. By 1994, approximately one-third of the states had some form of "performance indicator" system in place. Many of the accountability reporting systems were mandated by state legislatures or statewide higher education coordinating boards.[2]

"To unleash the creativity and innovation" of New Jersey's higher education institutions was one major goal of the 1994 restructuring of New Jersey higher education. Given the important purposes of higher education, what is the status of New Jersey's system of higher education? Can a current snapshot of the system provide a baseline, or a point of departure for expected benefits of a new governance structure established by the restructuring legislation? Moreover, can such a snapshot provide valuable data for statewide master planning?

The New Jersey Commission on Higher Education prepared this systemwide higher education accountability report. The report aims to:

- Inform the general public of the roles of higher education,
- Highlight the particular strengths of the New Jersey higher education system, and
- Provide baseline data to plan for unmet needs (challenges).

Accountability reporting is problematic. An accountability report for higher education that is merely a "report card" errs on the side of displaying outcomes without providing an explanation of special circumstances, level of state support, new initiatives, and progress made. On the other hand, an accountability report may appear concerned only with academic and institutional issues. The Commission adopted a definition of "performance indicators" put forward by Peter T. Ewell, a national expert on higher education accountability reporting: "Indicators can best be described as policy-relevant statistics produced regularly to support overall policy planning and monitoring at the national, state, or system level."[3] For the first accountability report since the 1994 restructuring, the performance indicators used are those which a number of other states have found useful for charting a future course.

The performance indicators used in this report fall in several categories: affordability; retention, transfer, graduation and time to completion of a degree; equality of access and success; and return on investment. The performance indicators used are the best available; however, these measures are far from perfect. For example, future reports will present more extensive data on cost and productivity. Also, there is a need both for better performance indicators and for more complete and accurate information for existing indicators, especially for national benchmarking purposes. There are encouraging signs of progress. The most notable national effort is proceeding under the auspices of the Joint Commission on Accountability Reporting (JCAR).[4] Among other achievements, JCAR formulated new indicators that more fully mirror varying missions of different types of higher education institutions. Actual implementation of novel indicators, sectorwide or systemwide, requires a sustained effort by all New Jersey participants. Moreover, the full value of such efforts would not be seen until the new indicators are benchmarked externally.

NEW JERSEY'S SYSTEM OF HIGHER EDUCATION[5]

The New Jersey system of higher education is guided by a tripartite governance structure. The governing boards of New Jersey's higher education institutions are accountable to the public for the fulfillment of each institution's mission, the furtherance of statewide goals, and the effective management of the institutions. The New Jersey Commission on Higher Education has statewide responsibility for planning, coordination, and advocacy of higher education to the public, the Legislature and the Governor. The New Jersey President's Council is responsible for program review and the nurturing of collegiality and cooperation among its members to achieve statewide goals, while providing information and research on higher education and advising the Commission, Governor, and Legislature.

When making national comparisons, one of the most important characteristics of New Jersey's higher education system is the small size of the system relative to the size of the population. The system is small in terms of both the number of students and faculty, and the number of institutions. These conditions affect the number of degrees conferred per capita and research funding per capita.

Nevertheless, higher education in New Jersey is a sizable enterprise, whether measured by numbers of institutions, students, or dollars spent on its operation. In fall 1994, New Jersey higher education enrolled 335,000 students at 56 degree-granting institutions.[6] The annual budget for higher education totaled more than $3.2 billion.

The following goals inform the roles and missions of New Jersey colleges and universities:

1) Meet the compelling need for an educated populace in order to:

- certify students' academic progress and completion of academic degrees or certificates,
- help break the poverty cycle of the economically disadvantaged,
- develop leaders for every walk of life,
- advance the social goal of full participation in American society of ethnic and cultural minorities,
- contribute to the cultural and intellectual life of the community,
- provide for life-long learning, and
- encourage good citizenship.

2) Conduct research to advance knowledge in the arts, humanities, social sciences, science, medicine, and technology.

3) Serve their host communities and the entire state.

New Jersey's integrated and coordinated system of higher education serves consumers and the state through a mosaic of public and independent institutions. For the purposes of this report, the institutions are grouped into four "sectors": community colleges, state colleges/teaching university, public research universities, and independent institutions (which include colleges, both teaching and research universities, and other degree-granting institutions). The independent institutions in turn are divided into three subcategories: independent four-year colleges and universities, proprietary institutions with degree-granting authority, and specialized religious institutions.[7] There is diversity of mission within each sector; for example, urban institutions in all sectors share certain common goals that are not central to suburban and rural institutions.

A. Four Basic Types of New Jersey Higher Education Institutions

Community Colleges: A community college is a public postsecondary educational institution established by one or more New Jersey counties (see map on page 5). Educational costs at New Jersey's 19 community colleges are funded by the state, the county, and student tuition and fees. To be admitted to a community college, an individual must either have a high school diploma or a G.E.D., or be 18 years old. Community colleges are "open admission," but maintain rigorous standards for graduation. Upon completing an approved sequence of courses, graduates earn an Associate in Arts (A.A.) degree, an Associate in Science (A.S.) degree, an Associate in Applied Science (A.A.S.) degree, or a specialized academic diploma or certificate. The widespread need for education beyond the high school level and the need to upgrade the skills and technological know-how of New Jersey's workforce demands a wide range of programs of study. New Jersey's community colleges collectively offer a broad spectrum of associate degrees and certificates,* as well as customized training programs for business and industry.

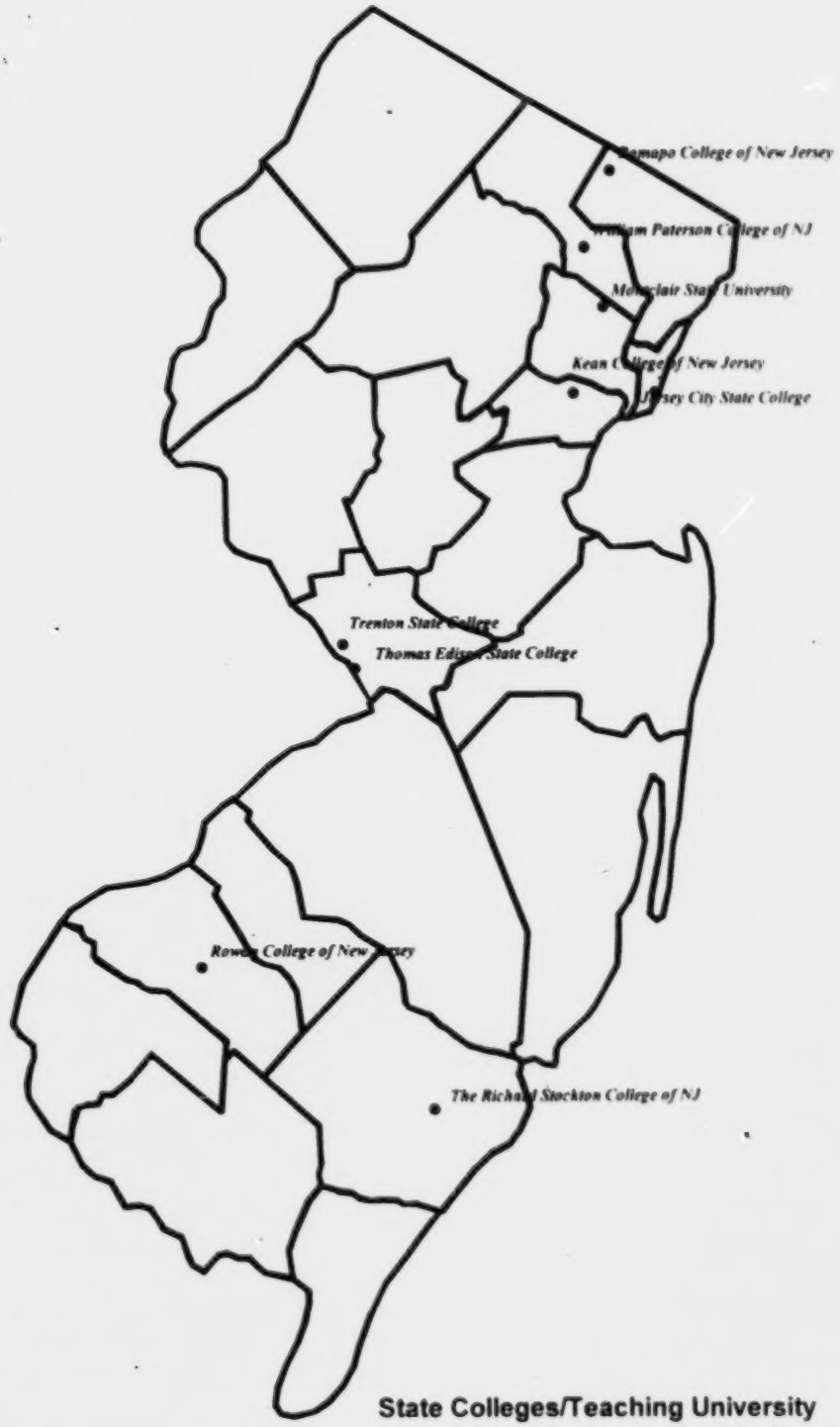
State Colleges/Teaching University: New Jersey has eight state colleges and one public teaching university (see map on page 6). Educational costs are funded by the state and student tuition and fees. The state colleges and teaching university primarily emphasize undergraduate education that culminates in a bacealaureate (B.A., B.S., or other bachelor's) degree; most of these institutions also offer programs of graduate study leading to a master's degree (M.A. or M.S.).* Even though these institutions are not fundamentally research-based, the faculty engage in scholarship and research which enhance their teaching and service. One state college, a distance learning institution for working adults, awards an associate degree in addition to baccalaureate and master's degrees. These institutions select students on the basis of multiple admissions criteria, which differ from one institution to another.

Public Research Universities: There are three public research universities. One specializes in health sciences, one specializes in engineering and technology, and the third is a comprehensive state university (see map on page 7). Educational costs are funded by the state, student tuition and fees, and other sources. Teaching is an important function, but research also receives special emphasis at the public research universities, along with patient care at the University of Medicine and Dentistry of New Jersey (UMDNJ). In addition to undergraduate education and work culminating in the master's degree, advanced graduate study leading to a doctoral or first-professional degree (e.g., M.D., Ph.D., or Ed.D.) is a major responsibility of a research university.* The public research universities select students on the basis of multiple admissions criteria.

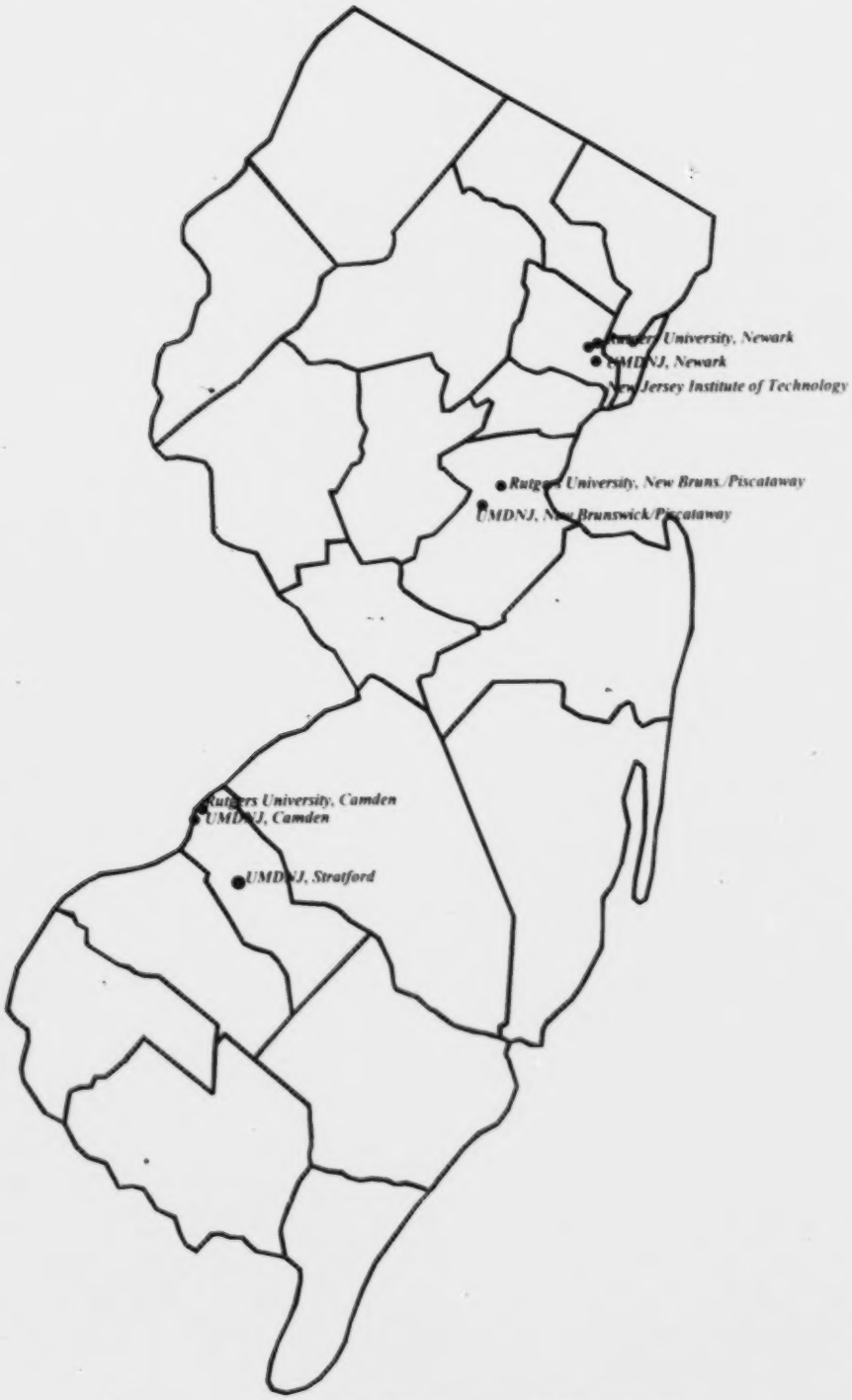
Independent Colleges and Universities: There are 14 independent colleges and universities with a public purpose in New Jersey (see map on page 8). They receive direct state support, and many of their students receive financial aid from the state. As a group these institutions exemplify a full range of missions, from small liberal arts colleges to an internationally recognized research university. New Jersey is also home to eight specialized religious colleges and three proprietary institutions licensed to grant associate degrees (see map on page 9). Independent institutions contribute a healthy diversity to the state's system of higher education and provide degrees on all levels.*

* Appendix A shows the numbers and types of degree programs in each N.J. collegiate sector.

Community Colleges


Ramapo College of New Jersey
William Paterson College of NJ
Montclair State University
Kean College of New Jersey
Jersey City State College
Trenton State College
Thomas Edison State College
Rowan College of New Jersey
The Richard Stockton College of NJ

State Colleges/Teaching University



Public Research Universities

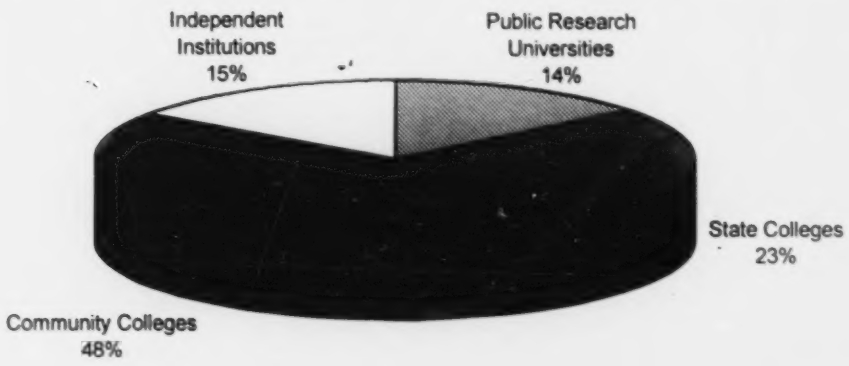
Independent Institutions with a Public Mission

Proprietary and Religious Institutions

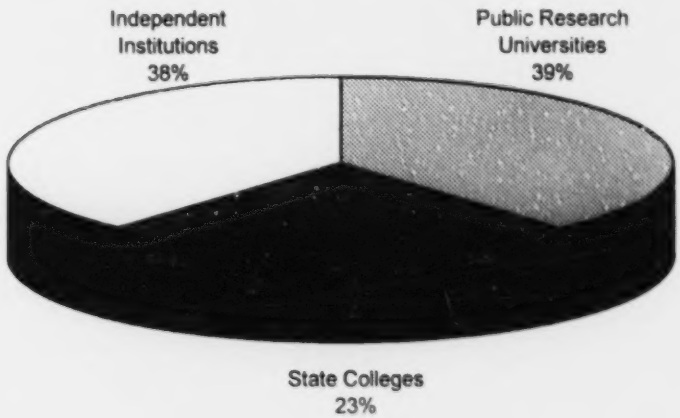
B. Enrollments

Enrollments are not an indicator of performance, but they do provide information on how a system's resources are used for undergraduate and graduate study. Enrollment data also show whether students are full-time or part-time and whether or not they are New Jersey residents. The New Jersey higher education system serves about 285,000 undergraduates and 50,000 graduate and first-professional (or postbaccalaureate) students. They are distributed among the four higher education sectors as follows:

UNDERGRADUATE ENROLLMENT, BY SECTOR*



POSTBACCALAUREATE ENROLLMENT, BY SECTOR*



* Source: Integrated Postsecondary Education Data System (IPEDS) Form #23, "Fall Enrollment, 1994"; "postbaccaluareate" includes graduate and first-professional enrollment.

Enrollments at the community colleges, the state colleges/teaching university, the public research universities, and the independent institutions are approximately 136,000, 77,000, 59,000 and 62,000, respectively. These figures do not include the sizable number of noncredit enrollments at community colleges.

BASIC ENROLLMENT STATISTICS FOR THE N.J. SYSTEM OF HIGHER EDUCATION: SYSTEMWIDE AND BY SECTOR*

	Pub. Research Universities	State Colleges	County Colleges	Independent Institutions	System Total
TOTAL ENROLLMENT:					
Undergraduate	40,237	65,846	135,762	43,448	285,293
Postbaccalaureate	19,061	11,510	---	18,907	49,478
Total	59,298	77,356	135,762	62,355	334,771
UNDERGRADUATES:					
% from Home County	n.a.	n.a.	87.6%	n.a.	n.a.
% N.J. Residents	92.3%	92.1%	98.9%	77.5%	93.1%
% Enrolled Full Time	78.5%	59.8%	40.3%	69.2%	54.6%
Mean Age (Years) (excl. Edison)	23.3	25.2	27.5	24.4	26.3

* Source: Integrated Postsecondary Education Data System (IPEDS) Form #23, "Fall Enrollment, 1994"; "postbaccaluareate" includes graduate and first-professional enrollment; data are headcounts, not FTEs. (Age data for Edison State College is excluded because it is a distance learning institution serving adult students almost exclusively.)

Characteristics of students enrolled for college credit at the four types of New Jersey higher education institutions reflect the sectors' different missions. For example, of those community college students who are pursuing a degree or certificate, 62% seek an award that could be transferred to a senior institution, while most of the remainder want a vocational degree or certificate for immediate employment. In addition, nearly one-quarter of community college students enrolled for college credit are not pursuing a degree or certificate. The latter group has very diverse goals, many involving various forms of personal growth. Some of these students already have an associate degree or certificate, or even a bachelor's degree.

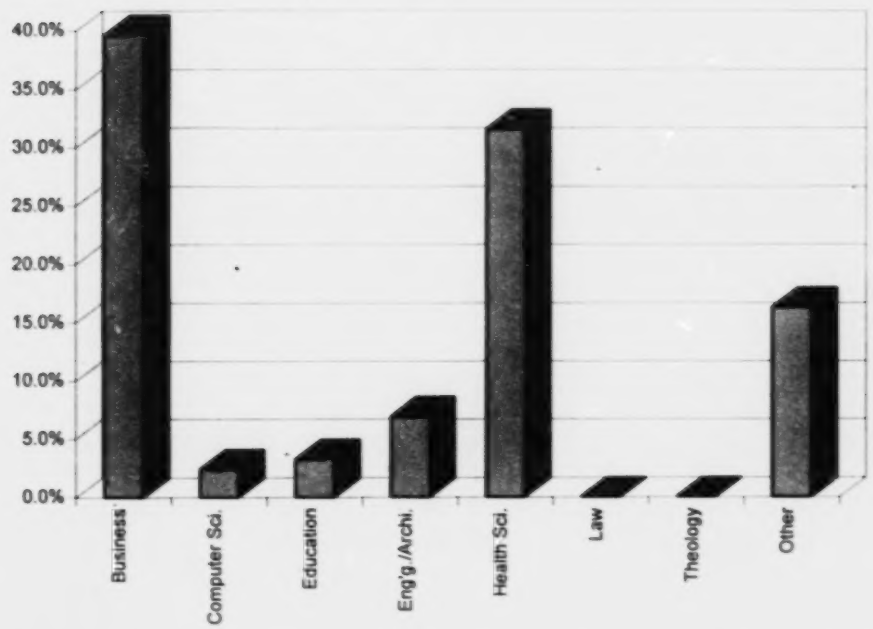
C. Degrees Awarded

Degrees are one product of a higher education system. When combined with other data, as is done later in this report, the numbers of degrees awarded become useful performance indicators of a system's productivity. New Jersey's colleges and universities granted about 50,000 degrees in 1993-94. Bachelor's degrees constituted about half; more than one-fourth were associate degrees or certificates, and over one-fifth were graduate degrees. Once again, there are notable differences among the four basic types of higher education institutions. At the community colleges, all degrees awarded are at the associate and certificate level. At the state colleges/teaching university, more than four-fifths are bachelor's degrees; the public research universities and independent institutions (all subcategories included) grant well over half of their degrees at the bachelor's level, but over one-third are at the graduate level.

Occupational or professional fields[8] predominate at all degree levels, especially at the graduate[9] level, where such fields account for 85% of all New Jersey degrees awarded. Occupational or professional fields

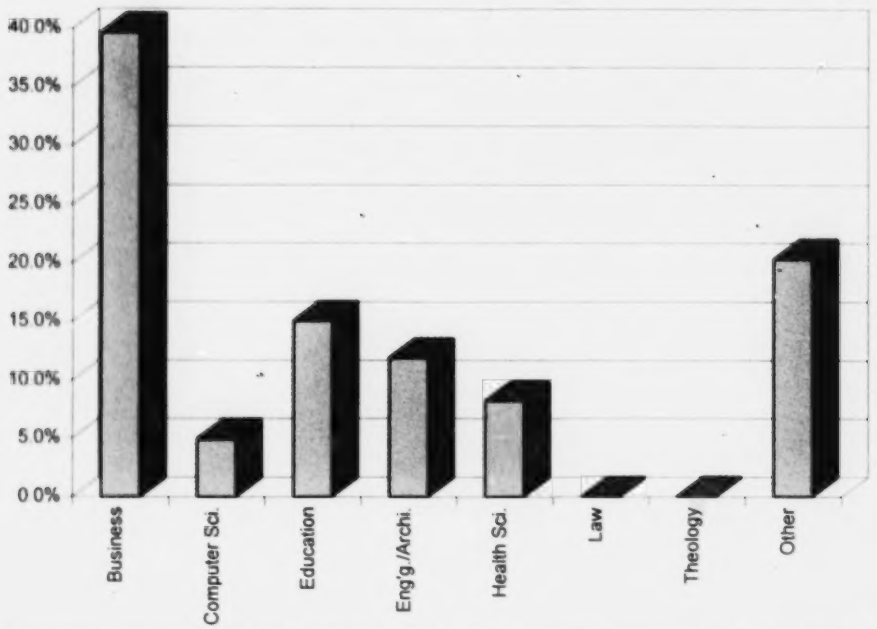
constitute 64% of all associate degrees or certificates, and 56% of all bachelor's degrees. In 1994 degrees were awarded within the occupational and professional fields as indicated in the charts that follow. Business is the most popular occupational or professional field at both the associate and bachelor's levels; the health sciences is a strong second at the associate level. Graduate occupational or professional degrees are more evenly distributed; the top two fields, business and education, each draw less than one-fourth.

PREBACCALAUREATE OCCUPATIONAL/PROFESSIONAL DEGREES*



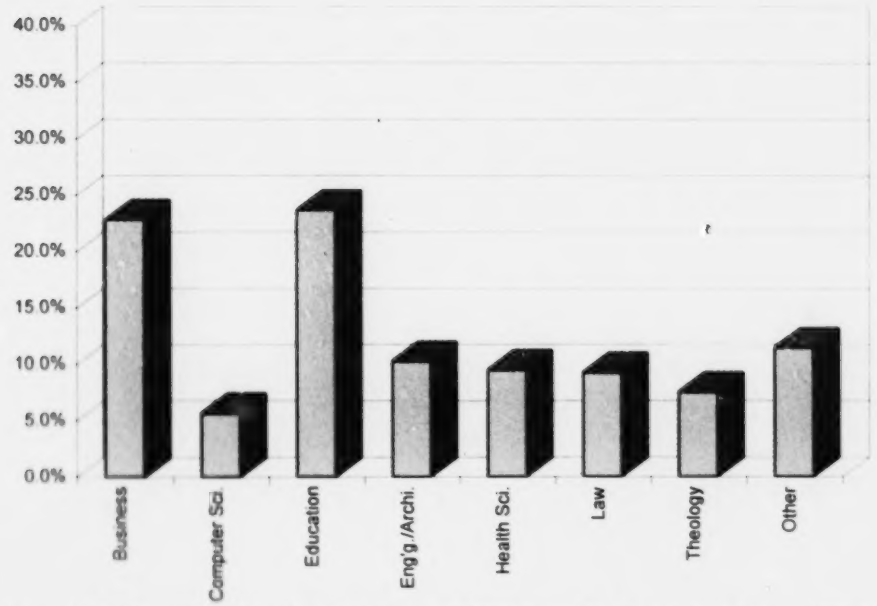
* Source: Integrated Postsecondary Education Data System (IPEDS) Form #21, "Completions Survey, 1993-94", includes associate degrees and associate-level certificates.

BACCALAUREATE OCCUPATIONAL/PROFESSIONAL DEGREES*



* Source: Integrated Postsecondary Education Data System (IPEDS) Form #21, "Completions Survey, 1993-94".

POSTBACCALAUREATE OCCUPATIONAL/PROFESSIONAL DEGREES*



* Source: Integrated Postsecondary Education Data System (IPEDS) Form #21, "Completions Survey, 1993-94"; includes master's, doctoral, and first-professional degrees.

Among baccalaureate arts and sciences degrees, over half are in the social sciences. These fields and the natural sciences and mathematics are the primary arts and sciences clusters at the graduate level. At the associate degree level, most arts and sciences students are in general, not specialized, programs.

D. Educational Attainment of New Jersey Residents

Information on the general population's educational attainment and higher education enrollment provides useful measures of workforce quality. The following table compares levels of education and extent of college enrollment in the U.S. and various states, in addition to New Jersey. (New York and Pennsylvania were chosen for the comparison because they border on New Jersey, and North Carolina and Virginia, because they compete with New Jersey for business and industry.) The first two rows show that New Jersey surpasses the nation and most of its competitor states with regard to the incidence of undergraduate degrees in the general population. However, the third and fourth rows indicate that rates of current college enrollment of New Jersey residents who continue to live in the state while enrolled in college are only average. In addition, in-state full-time enrollment -- but not in-state part-time enrollment -- is considerably lower here than elsewhere. In sum, we have an educated populace that is the result of a combination of enrollment in New Jersey colleges and universities and moving into the state after graduation.

EDUCATIONAL ATTAINMENT AND COLLEGE ENROLLMENT FOR THE GENERAL POPULATION: N.J. COMPARED WITH THE U.S. AND FOUR OTHER STATES*

	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
% of 25+ population w/ a bachelor's degree or higher	24.8%	20.3%	23.1%	17.9%	17.4%	24.5%
% of 25+ population w/ an associate degree or higher	30.0%	26.5%	29.6%	23.1%	24.2%	30.0%
% of all 18-24-year-olds enrolled in college	33.7%	34.4%	38.7%	36.0%	31.7%	32.7%
% of all 25-34-year-olds enrolled in college	9.6%	10.7%	11.4%	8.8%	9.1%	9.7%

* Source: Bureau of the Census, 1990 Census of the Population - Education in the United States, January 1994

FACULTY

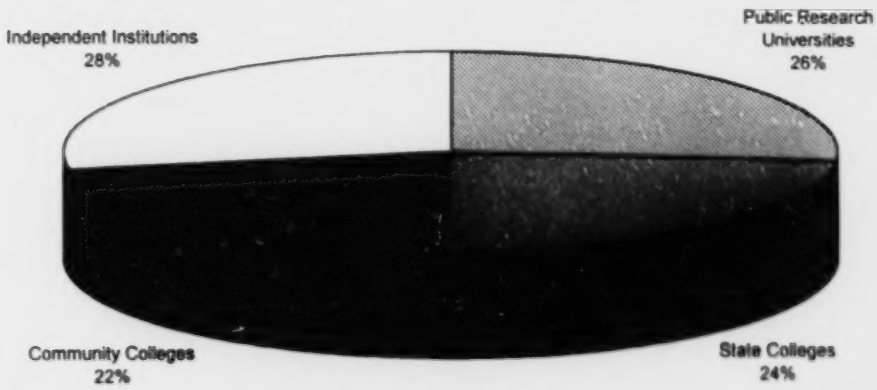
Each New Jersey college and university supports teaching, research, and public service in varying proportions, depending upon its unique mission. Similarly, the faculty's involvement in those three major aspects of an institution's mission varies by type of institution, as does their professional development. For example, the professional life of faculty at research universities is largely focused on teaching and research, both pure and applied, although public service also plays an important role. At UMDNJ, clinical faculty also provide health services. Faculty at state colleges distribute their time primarily between teaching and public service; their scholarly and artistic activities are primarily focused on improvements in instruction and curricula, and applied research. Public service has many faces within the New Jersey system of higher education. In some cases, pure research at a research university may result in applications of biotechnology, such as cleaning up the environment. Collectively, the independent four-year colleges and universities exhibit all of these patterns. Faculty and their students at all types of institutions may be actively engaged in their communities, providing assistance to various groups and individuals, including the elderly, inner city residents, businesses, schools, and others who can benefit from available services.

A. Teaching

New Jersey colleges and universities offer more than 2,500 degree programs in 39 broad areas of study (see Appendix A). Teaching is a central activity for all faculty, and there are many examples of faculty efforts to improve their teaching. A recent report by the American Council on Education found that nationally, full-time instructional faculty reported spending, on average, 61% of their time on teaching, 13% on research, and 25% on other duties.[10]

About 9,300 full-time faculty[11] teach at New Jersey's colleges and universities. Adjuncts, part-time faculty, and teaching assistants also provide instruction, but appropriate and current data are not available. The full-time faculty are distributed across the system as follows:

FACULTY ACROSS THE SYSTEM, BY SECTOR*



* Source: N.J. Integrated Postsecondary Education Data System (IPEDS) "Full-Time Faculty Profile, Fall 1993"; data are for instructional faculty only, and are in the form of headcounts, not FTEs.

B. Faculty Professional Development

Continuous professional development of the faculty is a way of life at all New Jersey higher education institutions. Depending on the type of institution, it takes different forms; in any case, faculty devote additional study and preparation beyond what is required for their teaching. Research, whether pure or applied, is a primary form of continuous professional renewal. Connections between higher education and business or industry through faculty internships provide benefits to all participants. Faculty also attend conferences in areas of specialization to keep current with developments in the field and renew professional contacts, and various forms of continuing education are available. Periodically, faculty may apply for a sabbatical to pursue a line of research or academic scholarship.

C. Faculty Research

Research fuels progress and helps to solve social, technological, health, and economic problems. It also enhances teaching by enabling faculty to bring to the classroom the latest developments in their fields and point students toward the future. By developing new ideas, refining the tools of scientific investigation, critiquing established positions and views, and approaching problems in innovative ways, research provides a vital service to the local, state, and national economies, and improves the quality of life. In addition, students benefit by participating in faculty research projects. The following sections highlight the research at New Jersey's research universities.

1. Rutgers University

The recent National Research Council report found that 11 of Rutgers' graduate programs are among the top 25 in faculty quality in the nation, and 10 programs are among the most improved nationally over the past five years. In fiscal year 1994, the Rutgers faculty attracted more than $149 million in research grants and contracts. This was a 14.7% increase over the previous year and a 318% increase over just 10 years ago. Most of this increase in research funding came from nonstate sources. This means Rutgers has leveraged the state's seed investment very effectively. The most impressive increases came in federal funding, which went from less than $23 million in 1984 to more than $93 million in 1994. This represents money being pulled into the New Jersey economy. Using 1993 figures, the National Science Foundation reports that Rutgers is 35th in the country among all educational institutions in research and development spending, with a total of $161 million. Using the multiplier developed for New Jersey by the Department of Commerce for job creation (32 jobs per $1 million spent), Rutgers' $161 million in research expenditures translates into 5,184 jobs created in the New Jersey economy.

Rutgers research generates significant patent activity. From 1988 to 1994, Rutgers' Office of Corporate Liaison and Technology Transfer disclosed 311 inventions and applied for 184 patents. Ninety-four patents were granted. In fiscal year 1994, 22 patents were issued, while 43 are pending. Many of these patents are licensed to New Jersey industry. In 1993, Rutgers' technology transfer operations ranked 16th nationally among all universities in royalty income.

2. University of Medicine and Dentistry of New Jersey (UMDNJ)

Research in the health sciences is a key mission of UMDNJ, supporting and contributing to its educational and health care missions. Basic biomedical, clinical, behavioral and health services research is conducted at UMDNJ's seven schools and at affiliated health care institutions. Research is being conducted on virtually every major frontier, including cancer, heart disease, AIDS, mental illness, molecular biology, genetics, and environmental health, among others. UMDNJ research provides direct and concrete benefits to the health and welfare of New Jersey citizens.

During the period from 1984 to 1991, UMDNJ was second among all U.S. universities in the increase in dollars spent on research and development. Total external funding to UMDNJ (for both research and the provision of medical care) increased from $178 million in FY 1993 to over $220 million in FY 1995. Research expenditures rose from $55 million in FY 1993 to over $70 million in FY 1995.

The university is also increasingly active in transferring the fruits of its research into the public domain by means of technology transfer, working with the pharmaceutical and biotechnology industries in the state and nationally.

3. New Jersey Institute of Technology (NJIT)

NJIT conducts research in areas of critical concern to New Jersey and the nation, such as environmental science, manufacturing productivity, transportation infrastructure, and telecommunications, and seeks to transfer newly developed technologies to the work place. NJIT'S research agenda has a strong applications orientation which allows NJIT to respond to state, federal, and industrial initiatives to solve pressing contemporary problems while encouraging economic growth. Research activities, often carried out by interdisciplinary teams of investigators, focus especially on protecting the environment and increasing the nation's competitive positions through the use of advanced, environmentally sound manufacturing technologies; well-planned and designed infrastructure for the transportation of goods and people; and the skillful management of technology.

4. Independent Institutions

Independent institutions attracted over $283.5 million in sponsored research funds in 1994, most of it from out of state.

Princeton University's Plasma Physics Laboratory is the nation's leading center of excellence for fusion energy research. Seven Princeton faculty and staff members have received the prestigious Nobel Prize. Most recently, Professor Eric Wieschau's research on genetic control of embryonic development earned him the 1995 Nobel Prize in Medicine. World class research is conducted in each of Princeton's nationally ranked graduate programs.

Stevens Institute of Technology's innovative Industrial Alliances utilize a multidisciplinary approach to pinpoint critically needed technologies, and to develop practical solutions to core challenges facing business and society. Alliance innovations lead to new products, benefit commercial R&D, and stimulate emerging industries like environmental technology and other key areas such as telecommunications and manufacturing.[12]

5. National Benchmarks

Research expenditures and levels of funding for research are one useful measure of a research university's success in this regard. The following tables summarize data on research *expenditures* by New Jersey institutions, as well as compare New Jersey with other states and the U.S. on overall research *funding* per capita, funding for selected research disciplines, and funding by source of support. The data show clearly that New Jersey's research institutions have made great progress over a 10-year period, and that they have narrowed the gap somewhat between New Jersey and the national average.

RESEARCH EXPENDITURES BY SELECTED N.J. INSTITUTIONS AND SECTORS: FY 1983 AND FY 1993*
(Constant 1993 Dollars)

	1983	1993	Absolute Change	Percent Change
NJIT	$4,144,918	$19,192,000	$15,047,082	363.0%
Rutgers	$51,388,841	$111,265,000	$59,876,159	116.5%
UMDNJ	$23,537,751	$55,206,501	$31,668,750	134.5%
All Public Institutions	$82,561,143	$188,891,549	$106,330,406	128.8%
Princeton	$159,913,427	$238,100,000	$78,186,573	48.9%
Stevens	$5,002,283	$14,812,819	$9,810,536	196.1%
All Independent Institutions	$172,343,231	$255,052,177	$82,708,946	48.0%
SYSTEM TOTAL	$254,904,374	$443,943,726	$189,039,352	74.2%

* Source: Integrated Postsecondary Education Data System (IPEDS) Form #40, "Financial Statistics"; FY 1983 adjusted for inflation using the R&D subindex of the Higher Education Price Index (HEPI); sector and system totals include research spending by colleges and universities other than those shown separately in the table.

FY 1982 AND FY 1992 TOTAL RESEARCH FUNDING PER CAPITA*
(Constant 1992 Dollars)

Year:	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
FY 1982	$23	$52	$66	$47	$46	$32
FY 1992	$49	$74	$83	$81	$83	$59
Absolute ($) change	$26	$23	$17	$34	$37	$28
Relative (%) change	110.4%	43.4%	25.9%	72.7%	82.1%	87.2%

* Sources: National Science Foundation, Computer-Aided Science Policy Analysis & Research (CASPAR) database (fiscal data); Information Publications, Almanac of the 50 States, 1994 Edition (1990 and 1980 censuses of the population). FY 1982 funding adjusted for inflation using the R&D subindex of the Higher Education Price Index (HEPI); calculation of changes may reflect rounding errors.

The data on total research funding indicate that while New Jersey's institutions are attracting much more funding than they did 10 years ago, other states -- and the nation as a whole -- have also improved in absolute terms. In fact, Pennsylvania and North Carolina have improved notably in relation to the national

figures; they went from being below the national average to being above. (New York remained higher than the national average, and Virginia remained lower.) In short, our competitor states are moving targets.

Institutional research funding per capita partially reflects the number of research institutions per capita in a state. Research universities are included in the overall mix of research entities in the state, including corporations that do a great deal of research as well as various nonacademic organizations whose primary activity is research. New Jersey has a great deal of research that is non-university-based. However, corporate downsizing is bringing about a consolidation of private sector research operations. While the primary purpose of these reorganizations is greater efficiency, an additional consequence may be a reduction in the amount of research undertaken by the corporate sector. In this context, corporations may find it desirable to contract with research universities to undertake the research they no longer conduct in-house. Finally, the funding picture is affected by the fact that the state lacks a sizable defense industry.

Funding patterns vary considerably by field. For example, while New Jersey roughly equals the nation in research funding for mathematics and computer sciences, it is lower in the life sciences. With regard to specific sources of funding, New Jersey institutions perform admirably in the area of providing their own institutional funds. On the other hand, they are below the national average and three of our four competitor states in funding from the federal government, the largest funding source. There is also less industry funding here than elsewhere. Finally, while the state governments in the two neighboring states provide less funding for research than does New Jersey, state research funding is much higher in the two southern states than in New Jersey. In addition, it should be noted that state operating aid for New Jersey's public research universities has a considerable indirect impact on their capacity to attract research funding from all sources. Helping to develop, maintain, and enhance an appropriate "research infrastructure" is an important obligation of the state.

SYSTEMWIDE RESEARCH FUNDING PER CAPITA BY ACADEMIC DISCIPLINE AND BY FUNDING SOURCE*

Academic Discipline	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
Engineering	$8	$12	$11	$18	$8	$13
Physical Sciences	$6	$8	$8	$6	$4	$5
Geosciences	$3	$5	$3	$2	$3	$6
Math and Computer Sciences	$3	$3	$4	$6	$3	$2
Life Sciences	$22	$41	$53	$43	$61	$31
Psychology	$2	$1	$2	$2	$1	$1
Social Sciences	$3	$3	$2	$4	$4	$2
Interdisciplinary/Other Sciences	$1	$1	$0	$1	$0	$0
Source:	**N.J.**	**U.S.**	**N.Y.**	**Pa.**	**N.C.**	**Va.**
Federal	$21	$44	$55	$52	$50	$32
State and Local	$5	$6	$4	$2	$11	$8
Industry	$3	$5	$5	$9	$10	$6
Institutional	$15	$14	$10	$13	$10	$10
Other	$3	$6	$9	$5	$3	$4

* Sources: National Science Foundation, Computer-Aided Science Policy Analysis & Research (CASPAR) database (FY 1992 fiscal data); Information Publications, Almanac of the 50 States, 1994 Edition (1990 census of the population)

The figures in the preceding two tables include funding for both public and independent research universities. Consequently, they do not provide direct benchmarks for New Jersey's public research universities alone.

D. Public Service

Colleges and universities serve as an economic engine for a state's future prosperity. In addition to their academic programs and faculty research, New Jersey colleges and universities have numerous public service initiatives. The statewide system of higher education seeks to:

- Serve small businesses through incubators, development centers, and forums for entrepreneurs;
- Attract the attention of national and international business and industry;
- Remain an attractive location for continuing and expanding business and industry operations;
- Ensure New Jersey's economic competitiveness through partnerships with business and industry;
- Provide customized training for business and industry;
- Serve individuals and businesses through Rutgers' Agricultural Experiment Station and extension services; and
- Contribute to stabilization and redevelopment of the state's most impoverished areas.

Myriad K-12 partnerships exist. Efforts range from comprehensive programs with school districts to individual work with students, parents, teachers, and principals. Examples of public service programs include:

- Academic programs that focus on literacy, geography, humanities, math, sciences, and computer technology;
- Career exploration programs;
- Curriculum redesign initiatives;
- Mentoring programs for students with various needs, including "at-risk" youth;
- Opportunities for advanced, supplementary, and remedial study during the academic year and summer months;
- Participation in campus cultural events;
- Research to improve urban education;
- Teacher training and enhancement; and
- Tutoring programs.

Additional efforts also flourish. For example, some undergraduate curricula and student orientation programs include community service as a component. Colleges and universities open their doors for public lectures, plays and other performances, art exhibits, and athletic events. Higher education facilities are also made available to local community agencies. Food and clothing are provided to local shelters, and free legal clinics are held for the surrounding communities.

UMDNJ fulfills its commitment to community service through many programs throughout the state offering treatment, prevention and education in the areas of medical, oral, behavioral and environmental health. The New Jersey Medical School of UMDNJ/Newark was the 1994 recipient of a national award for outstanding community service from the Association of American Medical Colleges.

AFFORDABILITY AND ACCESS

A. Costs of Attending College

Affordability and access are one important type of performance indicator that shows how well a statewide system of higher education meets the needs of state residents. The following table illustrates the range of basic charges for students in each of the four types of New Jersey colleges and universities. As will be shown below, cost differentials are addressed through the nature and extent of financial aid in New Jersey.

STUDENT CHARGES AT NEW JERSEY INSTITUTIONS OF HIGHER EDUCATION: RANGES, BY SECTOR -- FALL 1995*

For State Resident Full-Time Undergraduates At:	Tuition/Fees:		Room:		Board:	
	Low	High	Low	High	Low	High
Pub. Research Universities	$4,086	$5,220	$2,890	$3,840	$1,660	$2,046
State Colleges	$3,088	$4,241	$2,850	$3,606	$1,200	$2,774
County Colleges	$1,443	$2,515	n.a.	n.a.	n.a.	n.a.
Independent Institutions	$8,790	$20,960	$1,840	$4,510	$2,078	$3,326

* Source: Integrated Postsecondary Education Data System (IPEDS) Form #10, "Institutional Characteristics, Fall 1995"; data exclude U.M.D.N.J. and Edison State College.

Tuition and required fees charged by four-year independent colleges and universities in New Jersey (adjusted for interstate differences in the cost of living) are below the national average. New Jersey's state colleges and public research universities are somewhat above the national average; the state's community colleges are considerably above the national average. It is important to understand that these differences reflect, in part, contrasting policies among the various states regarding tuition and financial aid. New Jersey's relatively high tuitions are matched by generous financial aid programs.[13]

AVERAGE TUITION AND REQUIRED FEES -- 1994-95* NEW JERSEY COMPARED WITH THE U.S.

	New Jersey:			N.J. Compared with U.S.:	
	Unadjusted	Adjusted**	U.S.	$ Diff.	% Diff.
Public Four-Year Institutions	$3,675	$2,833	$2,635	$198	7.5%
Public Two-Year Institutions	$2,718	$2,096	$1,461	$635	43.4%
Indep. Four-Year Institutions	$10,271	$7,919	$8,967	($1,048)	-11.7%

*Source: National Center for Education Statistics, Basic Student Charges at Postsecondary Institutions, Academic Year 1994-95, November 1995, p. 6.

**Adjusted for cost of living; the first-quarter 1994 index for the Philadelphia metropolitan area, which is 29.7% higher than the national average, was used (see Bureau of the Census, Statistical Abstract of the United States, 1995, September 1995, Table 766, p. 498). Comparison is between the U.S. and *adjusted* New Jersey figures. The American Chamber of Commerce Researchers' Association (ACCRA), which develops the cost of living index for 310 urban areas, calculates a value for Manhattan, but not for the New York metropolitan area as a whole. (For the full set of urban areas, see the quarterly periodical ACCRA Cost of Living Index.)

B. Affordability Affects Access

College Costs Affect Students' Choice: A 1992-93 survey of New Jersey undergraduates[14] reveals that cost of attendance is one of four major factors that influenced their choice of a college or university. Other factors were availability of a particular academic program, college location, and the college's academic reputation. The variety of course offerings also was rated fairly high. Ratings were remarkably consistent across all types of institutions.

National data[15] show similar responses. Nationwide, financial considerations in choice of college or university are growing in importance. Concerns over college costs may be displacing the historically important concerns for academic reputation and postgraduation opportunities.

College Costs Affect Student Satisfaction: New Jersey students who apply for financial aid but do not receive it are less satisfied with their college experience than other students. When the cost of their education is more than expected, students also are less satisfied. Students' feelings about whether they are getting their money's worth affect satisfaction ratings. Worries about their ability to afford college also are related to students' levels of satisfaction -- those who are least concerned about having to leave school for financial reasons are the most satisfied.

Public Opinion Supports Student Assistance: The general public sees the value of a college education, and they favor helping students pay for college. A recent national public opinion survey[16] found that Americans strongly support federal aid to college students and oppose cuts in such funding. Large majorities believe that financial aid is an investment in the country's future (92%), and that the U.S. cannot compete globally without a college-educated workforce (87%); nearly three-quarters believe that enabling students to go to college should not be sacrificed in the name of deficit reduction. Although the survey asked people about federal spending and national issues, the results nevertheless are instructive for New Jersey, because they show clearly the very high priority people believe government should place on making higher education affordable.

Part-Time Students: Currently only small numbers of part-time students qualify for state financial aid. Yet, part-time students make up 45% of the state higher education student population. As high-paying, semi-skilled positions continue to disappear from the American economy, employees increasingly need to improve their skills through part-time enrollment. Currently, little financial assistance is available to part-time students. On the other hand, to assist part-timers by reducing the aid available for full-time students would spread the undesirable consequences to the latter as well.

C. Programs to Improve Access

Full-time students at New Jersey colleges and universities (and their parents) have an extraordinary array of opportunities to help them meet the costs of their education. New Jersey ranks second in the nation in state-funded grant aid to undergraduates per full-time student, fourth in the percentage of full-time undergraduates receiving such aid, and fifth in total state grants for student aid as a percentage of total state operating support for higher education institutions.[17] Tuition Aid Grants and Educational Opportunity Fund grants are the primary state-funded programs.

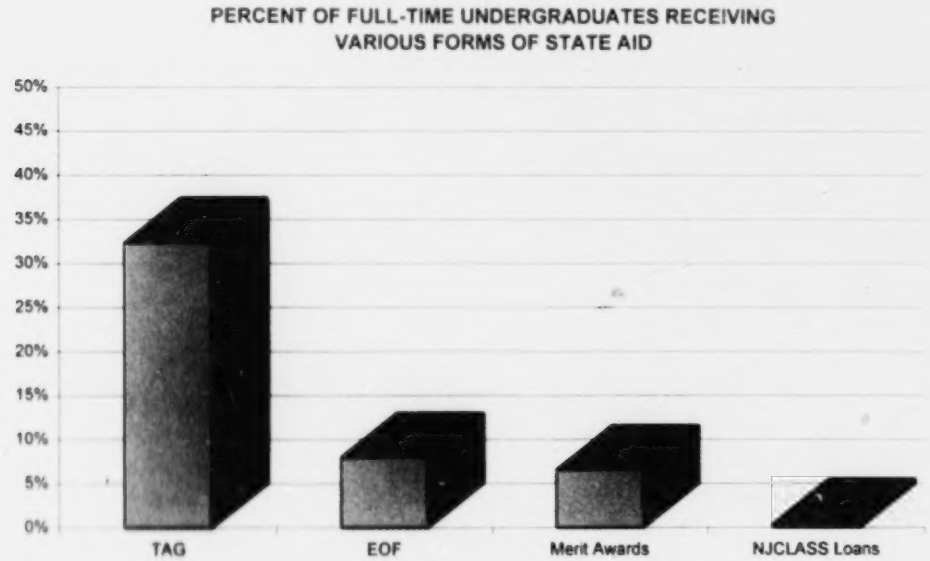
The Tuition Aid Grant Program (TAG): TAG is the keystone of New Jersey's undergraduate student financial aid programs. A 1977 statute expanded the program to reduce for financially needy state residents the tuition cost component of going to college in New Jersey. The program provides up-to-full-tuition grants at public institutions for the neediest students (or up to 50% of the average tuition at independent colleges and universities). In FY 1995, $119 million was made available to New Jersey students through the program. More than one-third of all TAG aid goes to students attending independent colleges and universities, and more than one-quarter to students at the public research universities; the state colleges/teaching university account for about one-fifth of TAG funding, and the county community colleges, the remaining one-sixth.

The Educational Opportunity Fund Program (EOF): Legislation created EOF in 1968 to ensure meaningful access to higher education for New Jersey students with backgrounds of economic and educational disadvantage. In collaboration with the EOF Board, the New Jersey Commission on Higher Education oversees the program, and the state's colleges and universities recruit and directly serve the students. EOF has evolved as an effective program with profound and multiple impacts. The program targets low-income students who are capable and motivated but who have been denied adequate preparation for college study, and it provides them with two different -- but equally important -- forms of assistance. To ensure the opportunity for such individuals to attend college, EOF offers supplemental financial aid to defray costs other than tuition (such as fees, books, room and board, etc.), which are not covered by the state's TAG program. To make this a truly viable opportunity to succeed and graduate, EOF also funds various campus-based recruitment, developmental, and academic enrichment services.

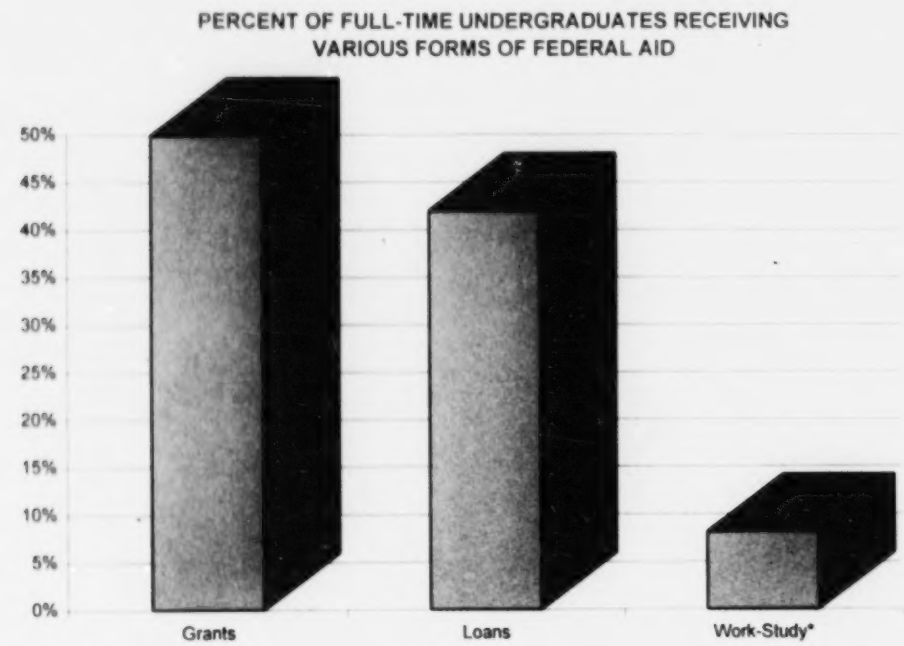
The program has proven, moreover, to be a valuable seedbed for educational innovations that have found broad applicability in the larger higher education community. Among the many powerful strategies that EOF has pioneered are precollege articulation, basic skills testing and remediation, systematic retention efforts, peer counseling and peer tutoring, academic support courses, multicultural curricula and human relations programming, student leadership development, and outcomes-based budgeting and program evaluation. (See Appendix B for distribution of EOF funds by sector.)

Additional Forms of Student Assistance: In addition to state aid to students, there is aid in the form of loans and grants from the federal government and the institutions themselves. The total amount of student assistance money flowing annually to New Jersey students attending the state's higher education institutions now exceeds $500 million. These funds help students bear the costs of their education at all of the four basic types of higher education institutions (see Appendix B).

Across the state higher education system, student assistance awards were distributed in 1994 as follows:[18]

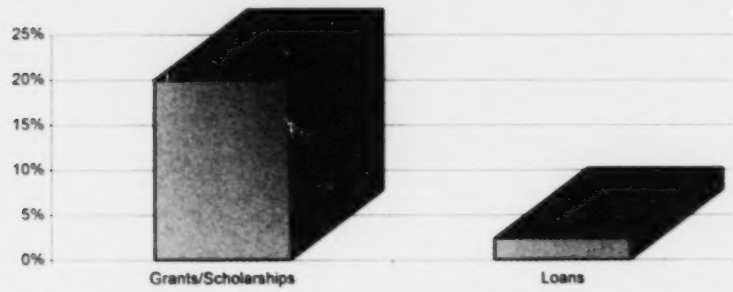


Source: Office of Student Assistance, N.J. Grant Records System, and NJCLASS database.



Source: Integrated Postsecondary Education Data System (IPEDS) Form #41, "Student Financial Aid Report, 1993-94"
*Work-Study is a federal program where students are paid a salary in exchange for work.

PERCENT OF FULL-TIME UNDERGRADUATES RECEIVING INSTITUTIONAL AID



Source: Integrated Postsecondary Education Data System (IPEDS) Form #41, "Student Financial Aid Report, 1993-94"

Patterns of Student Assistance by Sector: Percentages of students drawing state need-based awards (TAG and EOF) do not differ greatly by type of institution. On the other hand, federal grants support 40% of full-time undergraduates at the public universities, compared with 61% at the county colleges. The incidence of institutional grants and scholarships ranges even more widely, from 5% of students at the county colleges to 56% at the independent institutions. The percentages of federal-loan-aided students range from 11% at the county colleges to 93% at the independent institutions.

In terms of percentages of students, federal loans are the primary source of student aid for all but county college students. At the public research universities, TAG/EOF are the second largest source, followed closely by federal grants; for state college students, federal grants are the second largest source, and TAG/EOF, the third largest. For students at the independent institutions, institutional grants and scholarships provide almost as much aid as federal loans, with state and federal need-based awards a distant third and fourth, respectively. (This includes all independent institutionss. At the 14 independent four-year colleges and universities, institutional aid is even more significant.) For county college students, federal grants provide the most aid, followed by federal loans and TAG/EOF. (More detailed information about dollar amounts and numbers of aid recipients appears in Appendix B.)

Funding for federal student assistance programs has been increasing. However, a disproportionate share of this expansion occurred in the loan programs, not in grants. As a result, student indebtedness has increased. However, New Jersey's strong grant programs have partially ameliorated the impact of this national trend, and thereby protected access to a large extent.

D. Student Preparation for College

Not all barriers to college attendance are financial. A serious obstacle to attending college for many students is a failure to acquire certain academic skills at the high school level, and perhaps earlier.

At senior higher education institutions, one assessment of entering students, the Scholastic Assessment Test (SAT), historically has gauged the likelihood of academic success in college. Across all New Jersey senior institutions, both public and independent, the fall 1994 entering freshman class posted average SAT scores of 477 (verbal) and 546 (math). These scores exceed those for all state and national test-takers,[19] including those who are not college bound.

Another measure, sometimes used in conjunction with SAT scores, is high school rank. For the fall of 1994, the average high school percentile rank by type of higher education institution was as follows:

Public Research Universities	80
State Colleges/Teaching University	69
Independent Institutions	64

As "open admission" institutions, community colleges do not admit students based on their SAT scores or high school rank.

In New Jersey, as in other states, significant numbers of students enter colleges and universities without the skills they need to undertake college-level study. In fall 1993 about 43% of those entering community colleges lacked proficiency in reading and/or writing, 48% in math computation, and 65% in elementary algebra. These figures are typical of "open enrollment" institutions. However, the need for basic skills remediation exists throughout the system. Across all public colleges and universities, over one-third of all entering students lack proficiency in reading or writing, as do a similar proportion in math computation; half are lacking in elementary algebra. The New Jersey system of higher education has extensive opportunities for remediation. These programs do not completely equalize the chances for success between remedial and nonremedial students; but they do reduce these differences significantly. They also increase the cost of providing higher education by lengthening the time it takes to complete a degree and by necessitating remedial specialists. The direct cost of providing remediation systemwide may well reach $50 million annually. These factors exist in most other states as well. Together they add up to a loss of degree productivity for the higher education system as a whole.

E. Retention, Transfer, Graduation, and Time to Completion[20]

True "access" to college means more than being able to enroll in an institution of higher learning. It also means having a realistic chance of completing one's program of study -- of obtaining a degree. Access to a degree is more difficult to achieve than simple college admission, particularly in light of poor preparation and financial barriers. For all these reasons, several of the most important performance indicators are rates of student success in achieving academic objectives, such as retention, transfer, and graduation, as well as the average time it takes to earn an undergraduate degree. They are useful performance indicators.

This report does not present outcomes data for the independent four-year colleges and universities. The data reported here have been generated by the Commission's student tracking system, which until the

current academic year included only public institutions. Three independent institutions joined the system last fall, and others may join in the future.

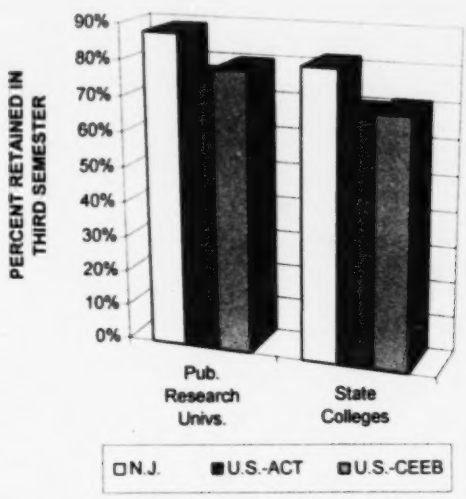
It is very important to understand that factors which threaten access to enrollment -- such as financial barriers and inadequate academic preparation for college work, as discussed above -- also threaten access to academic success. For example, students on whom we report graduation rates are full-time degree seeking students. Many face financial difficulties during their college careers causing them to take only a minimal full-time courseload, drop out temporarily to earn more money, or change to part-time status for the same reason. These sorts of circumstances clearly affect time to completion, the probability of graduating within a specific time frame, and perhaps even the long-term prospects of graduating at all.

What students in New Jersey want out of college varies, to some extent, by type of college. However, systemwide, more than eight of every ten undergraduates enroll for purposes including graduation and/or transfer. Specifically, three-fourths of respondents to the 1992-93 student survey[21] said they wanted to earn a degree: 60%, a bachelor's, and 15%, an associate degree; another eight percent said they were taking courses for transfer to another institution. More than seven in ten students surveyed reported plans either to obtain a degree or to transfer.

1. Senior Public Institutions

Retention Rates: The percentage of full-time degree-seeking students starting in a given fall term who enroll the following fall, i.e., the retention rate, is 84% for the senior public institutions[22] - a figure that is clearly higher than in other states. This reflects in part New Jersey's strong commitment to making higher education both affordable and accessible.

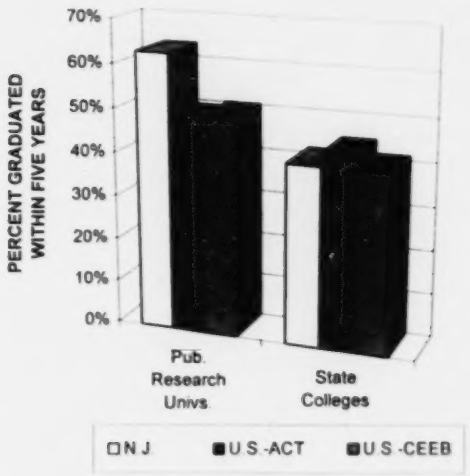
THIRD-SEMESTER RETENTION RATES FOR SENIOR PUBLIC INSTITUTIONS:
N.J. COMPARED WITH NATIONAL DATA*



* Sources: ACT = American College Testing Program, Institutional Data File, 1994. CEEB = College Entrance Examination Board, Summary Statistics: Annual Survey of Colleges, 1992-93 and 1993-94; N.J. = Student Unit Record Enrollment (SURE) data system.

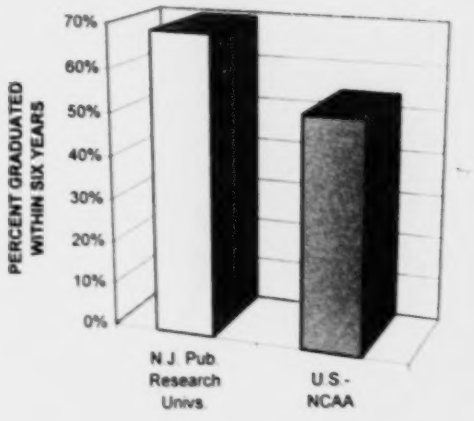
Graduation Rates: New Jersey's public research universities have a five-year graduation rate -- 63% -- that is well above that for their national counterparts; the state colleges and teaching university in New Jersey have a rate -- 41% -- that is equal to or slightly below the corresponding national figures. The six-year rates for both the public research universities and the state colleges in New Jersey -- 69% and 49% respectively -- are above their respective national benchmarks.

FIVE-YEAR GRADUATION RATES FOR SENIOR PUBLIC INSTITUTIONS:
N.J. COMPARED WITH NATIONAL DATA*



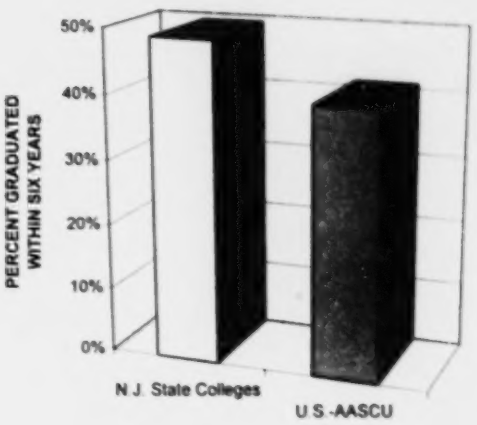
* Sources: ACT = American College Testing Program, Institutional Data File, 1994. CEEB = College Entrance Examination Board, Summary Statistics: Annual Survey of Colleges, 1992-93 and 1993-94. N.J. = Student Unit Record Enrollment (SURE) data system.

SIX-YEAR GRADUATION RATES FOR PUBLIC RESEARCH UNIVERSITIES:
N.J. COMPARED WITH NATIONAL DATA



* Sources: NCAA = National Collegiate Athletic Association, 1994 NCAA Division I Graduation Rates Report; N.J. = Student Unit Record Enrollment (SURE) data system.

SIX-YEAR GRADUATION RATES FOR STATE COLLEGES:
N.J. COMPARED WITH NATIONAL DATA

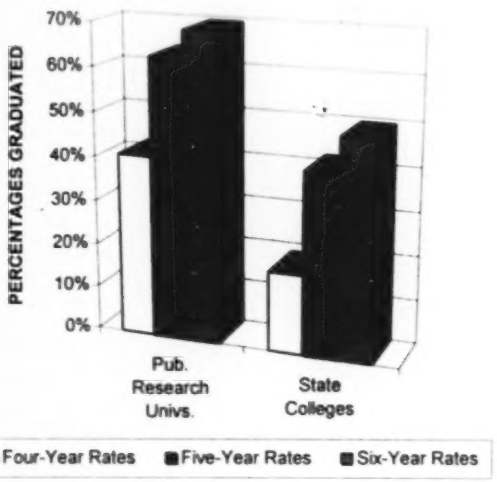


* Sources: AASCU = American Association of State Colleges and Universities, AASCU/Sallie Mae National Retention Project: 1993 Survey Results; N.J. = Student Unit Record Enrollment (SURE) data system.

Time to Completion: Among those who do graduate from a New Jersey state college or teaching university, the average time to completion is almost exactly five years (5.05) for a bachelor's degree. The New Jersey average is similar to that for the U.S. (4.9 years). Students throughout the nation appear more likely than those in New Jersey to take more than six years (21%, compared with 8%) to complete their degrees.[23] Only about one-third of graduates -- in New Jersey and other states -- actually finish in four years (or less).

The figure below illustrates how the New Jersey graduation rates rise as "extra" years are added.

FOUR- , FIVE- , AND SIX-YEAR GRADUATION RATES
FOR N.J. SENIOR PUBLIC INSITUTIONS*



* Source: Student Unit Record Enrollment (SURE) data system.

2. County Colleges

Combined Outcomes: Students at county colleges, more so than those at other types of institutions, are likely to have academic goals other than (or in addition to) receiving a degree from their current institution. For this reason, it is useful to construct a measure of student success that includes other positive outcomes, in addition to graduation. For example, if success is defined as graduating or transferring from a county college within four years or remaining enrolled at the institution at the end of that time, the overall county college success rate is 39%. If the definition is further expanded to include as a positive outcome leaving the institution (for any reason) while in good academic standing, the success rate is considerably higher.

Time to Completion: For students who earn an associate degree from a New Jersey county college, the average time to completion is 3.8 years. Only one graduate in seven takes just two years, and almost one in four takes more than four years. We do not have national figures with which to compare these numbers. However, the New Jersey picture is probably not atypical.[24]

Transfer Rates: The Center for the Study of Community Colleges provides solid benchmark data on transfer. The New Jersey percentage of new community college students who transfer within four years is at least as high as the national average. Moreover, the 22% rate for New Jersey is a minimum figure -- because it includes only students transferring to New Jersey public institutions and omits those transferring to independent institutions or out of state.

Academic Performance of Transfer Students: New Jersey students who transfer to a state college are more likely to graduate than students who are "native" to the institution; transfers at Rutgers are roughly comparable to native students in the longest time frame (see table below). In addition, community college transfer students have grade point averages (GPAs) at the receiving institutions that are within one-tenth of a point of the native students' -- 2.9 compared with 3.0 (on a four-point scale).

GRADUATION RATES OF FRESHMEN AND COMMUNITY COLLEGE TRANSFERS:*
SENIOR PUBLIC INSTITUTIONS

Number of Years to Graduation: Freshmen / Transfers**	State Colleges:*** Freshmen	State Colleges:*** Transfers	Rutgers University:*** Freshmen	Rutgers University:*** Transfers
Four / Two	17.7%	18.6%	43.9%	15.8%
Five / Three	40.8%	47.9%	66.4%	49.3%
Six / Four	48.5%	62.1%	71.3%	67.0%
Total No. in Fall 1988 Cohort	7,287	1,523	5,436	758

* Source: N.J. Student Unit Record Enrollment (SURE) data system.

** "Freshmen" means full-time first-time freshmen; "transfers" means full-time transfers. Because transfer students may enter with as many as 60 credits, the equivalent of about two years of college work, their graduation rates are compared with freshman time frames that are two years longer. Some transfers enter with fewer than 60 credits, and thus need more time to graduate; however, transfer, unlike freshman, cohorts do not contain significant numbers of early dropouts. Because of these complexities, future reports will use, instead of native freshman cohorts, native junior and/or sophomore cohorts as comparison groups for transfer students.

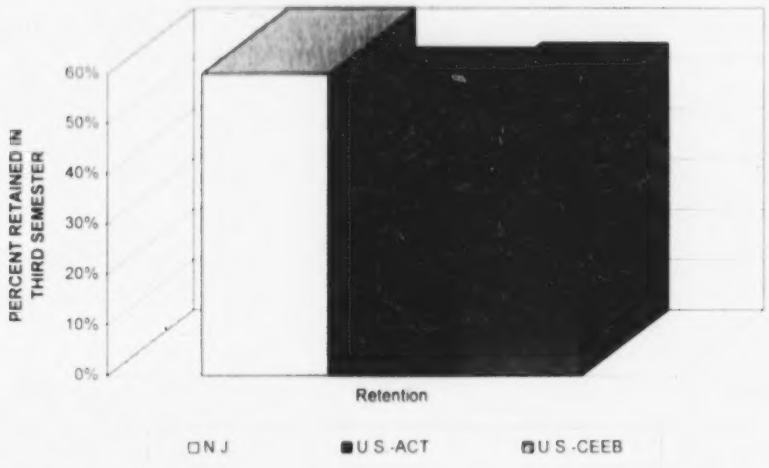
*** "State Colleges" includes one teaching university. NJIT is not included because data for its 1988 full-time transfer cohort are not available.

Retention and Graduation Rates: As is the case for New Jersey's senior public institutions, community colleges have higher third-semester retention rates than are found nationally. A national source, the National Center for Education Statistics (NCES), which uses a methodology[25] that is quite different from what states and institutions use, reports graduation rates similar to those of the community colleges in New Jersey. Among four other states (Colorado, New York, Oklahoma and South Carolina) whose community college graduation rates have been made available to the Commission, New Jersey is in the middle -- that is, higher than two and lower than two.[26]

In deriving outcomes data for a cohort of beginning students, it is customary to track its members from the time they enter an institution, not from the time they complete remediation and/or ESL and are ready to undertake college-level study. Clearly, this practice can have a significant effect on graduation rates and time to completion. Some students require longer than three or six years to graduate; others discover during the course of remediation that they do not belong in college. While these phenomena can occur at

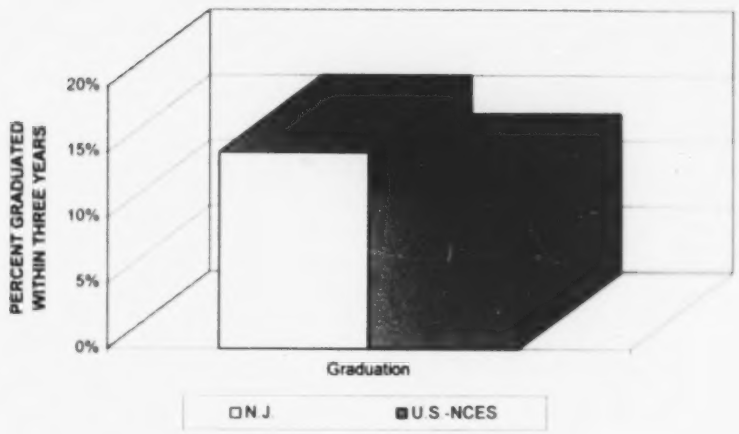
any institution, they tend to be more prevalent at community colleges. There is also a factor that affects community college outcomes exclusively. In some cases, transfer/articulation between community colleges and senior institutions act as an incentive for community college students to transfer before obtaining an associate degree to avoid the loss of transfer credits. While this tendency does not affect transfer rates or combined outcome rates, it does affect community college graduation rates.

THIRD-SEMESTER RETENTION RATES FOR PUBLIC TWO-YEAR COLLEGES: N.J. COMPARED WITH NATIONAL DATA*



* Sources: ACT = American College Testing Program, Institutional Data File, 1994. CEEB = College Entrance Examination Board, Summary Statistics: Annual Survey of Colleges, 1992-93 and 1993-94. N.J. = Student Unit Record Enrollment (SURE) data system.

THREE-YEAR GRADUATION RATES FOR PUBLIC TWO-YEAR COLLEGES:
N.J. COMPARED WITH NATIONAL DATA*



* Sources: NCES = National Center for Education Statistics, Minority Undergraduate Participation in Postsecondary Education, June 1995; N.J. = Student Unit Record Enrollment (SURE) data system.

3. Preparedness and Outcomes

State Colleges/Teaching University: In the state college sector, *prepared, slightly underprepared,* and *very underprepared* students exhibit sharply contrasting graduation rates. An examination of six-year graduation rates reveals that there is a 20-point gap between the very underprepared and slightly underprepared students; slightly underprepared and prepared students exhibit a 16-point difference. State college students who severely lack proficiency in the verbal area plus either or both of the mathematics areas--computation and algebra--have substantially lower graduation rates than those who severely lack proficiency in both mathematics areas but not in the verbal area. Graduation prospects for students who are severely lacking in all three areas are about one chance in eight.

County Colleges: Clear graduation rate gaps also exist among the three levels of preparedness of county college students. Thirteen points separate the four-year graduation rates for the very underprepared and slightly underprepared groupings, and 12 points separate the slightly underprepared and prepared. Like their state college counterparts, those who severely lack proficiency in the two quantitative areas but not in verbal skills are less disadvantaged in terms of their graduation prospects than those with verbal (plus quantitative) deficiencies; but here the differences are less pronounced. Graduation prospects for county college students who are severely lacking in all three areas--or in the verbal and computation areas--are about one chance in 18.

These data have implications for graduation time frames. Some students may require more than two "extra" years to graduate and do receive a degree within a longer time frame. This is particularly likely to be the case when serious remedial requirements are combined with ESL status and/or other factors.

4. Factors Affecting Students' Academic Progress

Student respondents to the 1992-93 survey[27] who indicated that their progress toward their degree was "behind schedule" (as opposed to "on schedule" or "ahead of schedule") explained why this was the case. Systemwide, the most frequently cited reason was an academic status reflecting poor grades, dropped classes, or change in major. These reasons were given by almost one-fourth of the students responding to the question. Academic status was followed by lack of finances or a need to work (20%), general academic requirements or unavailability of required courses (18%), and part-time or transfer status (17%).

Community college students were most likely to cite financial reasons for their status. Students enrolled at independent institutions frequently gave similar responses. Students at the state colleges cited part-time or transfer status more often than those in other sectors to explain their lack of progress. Students at Rutgers and NJIT were by far the most likely to cite their academic status.

While individual academic status is the leading factor for time to graduation for students who are enrolled full time, among part-time students, financial considerations (42%) overwhelm all others. Financial concerns become more significant as attention shifts from students who are not employed to those who are employed part time to those who are full-time workers.

F. Equality of Access and Success

Equality of opportunity is an overall state policy goal, and higher education furthers its achievement. Ideally, "access" to higher education should mean equal access; it should not vary significantly by race/ethnicity or by sex. Equality of access to and success in higher education are performance indicators that provide partial evidence of how New Jersey colleges and universities contribute to fulfilling an important state goal.

Placing the data on minority outcomes in a separate section ensures that the important issues surrounding them are not buried in a general discussion of outcomes. It is not intended to imply that these issues are fundamentally different --or entirely separate--from other issues. On the contrary, the discussions of affordability, student preparation for college, and all factors that impede students' access to and progress in higher education apply here as well.

It is likely that the most fundamental factors affecting the academic prospects of Americans at all educational levels are economic. Among people of all races, the economic status of individuals and their parents directly affects students' chances of success. Differences in economic status are a hidden, but real, cause of significant variations in outcomes. Unfortunately, we cannot analyze these factors statistically, because some critical data for such an analysis are not available -- namely verifiable income data on students (or their parents) who do not receive financial aid (as compared with such data on aided students, which are available). The unavailability of these critical data should be kept in mind when considering the intergroup disparities displayed in the charts that follow.

Data from a recent national survey of undergraduates, however, do reveal a strong link between racial/ethnic characteristics and income.[28] For example, the poorest students (those in the lowest income quartile) are three times more likely to be African-American and two times more likely to be Hispanic than

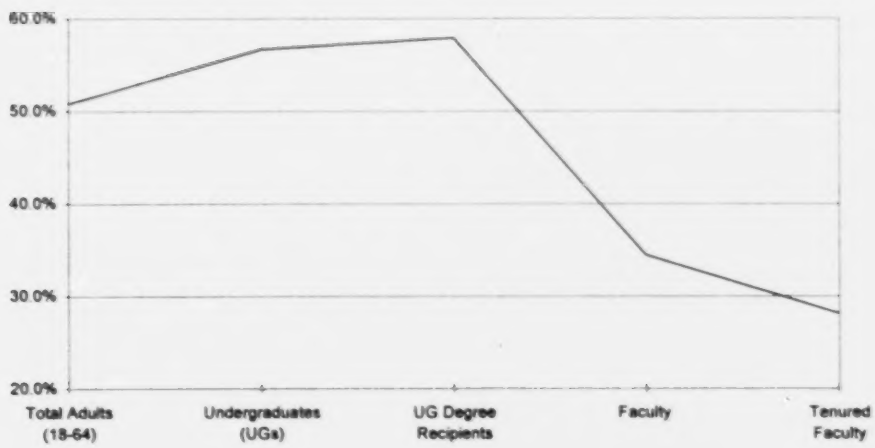
students in the highest income range; African-Americans and Hispanics are three times more likely than white students to be from families with incomes under $10,000.

Moreover, disparities in educational attainment for different income levels in the general population are huge, persistent, and growing, and nearly as wide as ever during the past 25 years. According to national estimates for 1994,[29] by age 24 someone with a family income in the top quartile is 10 times more likely to have received a bachelor's degree than someone with a family income in the bottom quartile. In 1979, the estimated ratio for two such individuals was much smaller, just four to one.

1. Systemwide Analyses

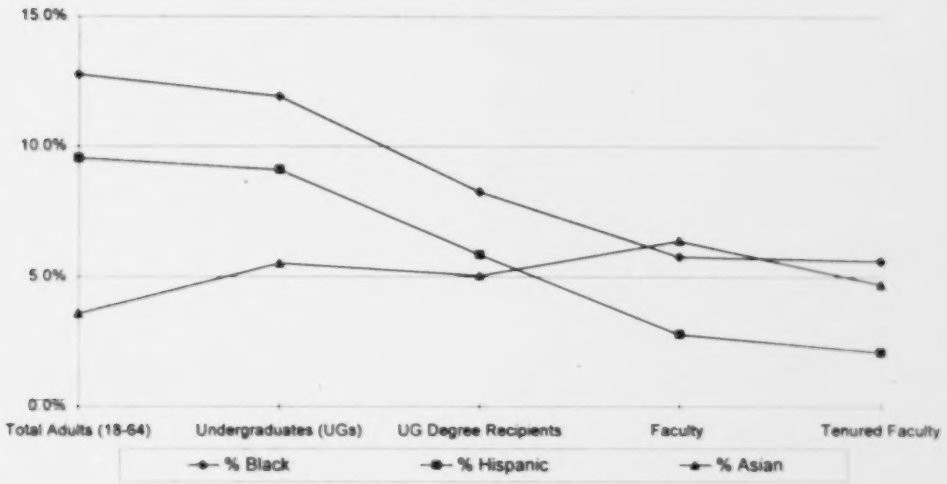
The percentage shares for various demographic groups changes considerably when comparisons are made among the general population in New Jersey, enrolled undergraduates and degree recipients, and all faculty and tenured faculty. In the past 25 years, racial/ethnic minorities and women have made significant advances as they take their rightful place in American society. When compared to their numbers in the general population, their enrollment in colleges or universities has been positive, but percentages decline as they move from participation in higher education, to graduation, to faculty membership and tenure. African-Americans fall from 13% of the general population to 6% of tenured faculty, and Hispanics, from 10% to 2%. The pattern for Asians is inconsistent.[30] For women, there is a rise among the student population, but then their representation falls off sharply among the two faculty groups.

REPRESENTATION OF WOMEN AMONG
VARIOUS N.J. POPULATIONS



Sources: Population data are from the 1990 census; all other data are from Integrated Postsecondary Education Data System (IPEDS) cited elsewhere in this report (enrollments, fall 1994; degrees, 1993-94; faculty, fall 1993).

REPRESENTATION OF MINORITIES AMONG
VARIOUS N.J. POPULATIONS



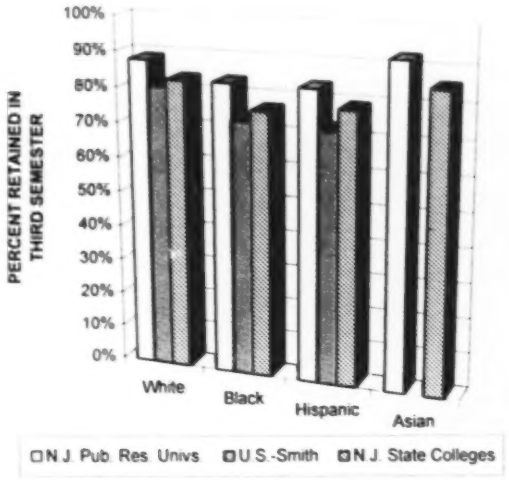
Sources: Population data are from the 1990 census; all other data are from Integrated Postsecondary Education Data System (IPEDS) cited elsewhere in this report (enrollments, fall 1994; degrees, 1993-94; faculty, fall 1993).

A recent national study[31] ranked the states on educational equity for minority students in public institutions from high school through college.[32] The data show, for each state, how well minorities compare with white students on high school graduation, college entrance, and baccalaureate degree attainment rates, and how that compares with the national picture. Among the 45 states for which this analysis was feasible, New Jersey and three other states are tied for fifth from the top.[33] Pennsylvania is one of the states that are tied with New Jersey, while New York is 18th; North Carolina is ranked second, while Virginia is 16th.

2. Senior Public Institutions

Retention Rates: How does New Jersey higher education compare with national data in terms of equity in retention and graduation rates?[34] At the senior public institutions in New Jersey, third-semester retention rates for the four racial/ethnic categories of New Jersey students (white, African-American, Hispanic, and Asian) are higher than those for their national counterparts.

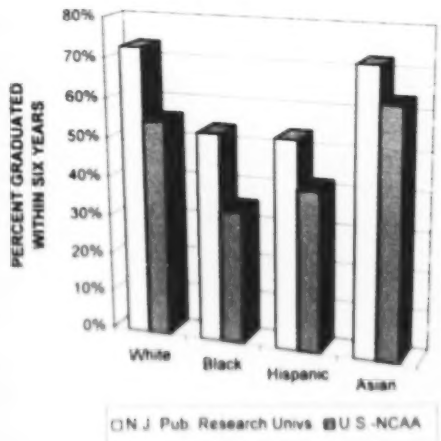
THIRD-SEMESTER RETENTION RATES FOR SENIOR PUBLIC INSTITUTIONS,
BY RACE/ETHNICITY:
N.J. COMPARED WITH NATIONAL DATA*



* Sources: Smith = paper by Theresa Y. Smith presented at the Association for Institutional Research Annual Forum, May 1995, N.J. = Student Unit Record Enrollment (SURE) data system.

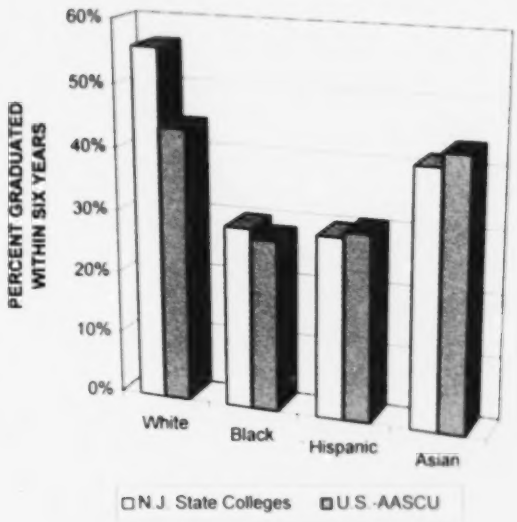
Graduation Rates: Six-year graduation rates for African-American and Hispanic students in New Jersey are roughly 20 percentage points lower than those for whites and Asians. As can be seen from the following chart, these patterns closely parallel the national outcomes measures.

SIX-YEAR GRADUATION RATES FOR PUBLIC RESEARCH UNIVERSITIES,
BY RACE/ETHNICITY:
N.J. COMPARED WITH NATIONAL DATA*



* Sources: NCAA = National Collegiate Athletic Association, 1994 NCAA Division I Graduation Rates Report; N.J. = Student Unit Record Enrollment (SURE) data system.

SIX-YEAR GRADUATION RATES FOR STATE COLLEGES,
BY RACE/ETHNICITY:
N.J. COMPARED WITH NATIONAL DATA*



* Sources: AASCU = American Association of State Colleges and Universities, AASCU/Sallie Mae National Retention Project: 1993 Survey Results; N.J. = Student Unit Record Enrollment (SURE) data system.

Time to Completion: Among those who do graduate, white and Asian students complete their degrees more quickly than African-Americans and Hispanics; the latter two groups average about five-and-one-half years, and the former two, about five years. A similar pattern is true nationally.[35]

3. County Colleges

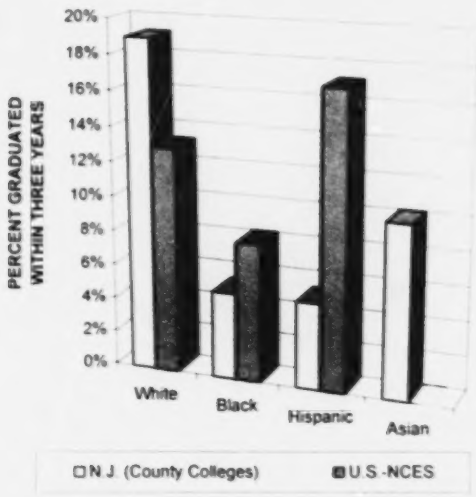
Transfer Rates: Asian students post the highest rates of transfer from county colleges to in-state senior public institutions over a four-year period. Both white and African-American county college students in New Jersey are about as likely as their national counterparts to transfer; Asians and Hispanics are somewhat more likely to transfer.

Time to Completion: White county college students who earn an associate degree have the shortest time to completion, 3.7 years; Asians (3.8 years) and Hispanics (3.9 years) are not far behind. African-American students, on the average, take another half year (4.4 years) to complete an associate degree. Comparable data for the nation are lacking.

Retention and Graduation Rates: Asian students at New Jersey community colleges have the highest third-semester retention rates (69%), followed by whites (62%), Hispanics (55%), and African-Americans (46%); national figures are not available for comparison. New Jersey graduation rates, which are

calculated over a three-year period, are highest for whites and lowest for African-Americans and Hispanics; Asians are in the middle. The national data[36] suggest that the white-African-American disparity may hold for the U.S., but that Hispanics may do somewhat better across the nation than in New Jersey. National data are from a sample survey of students, which raises questions about sampling error, and breaking the total sample into racial/ethnic categories produces subsets that are smaller -- and therefore more subject to sampling error -- than the total sample. If the contrast between state and national data is consistently reflected in future benchmarking efforts, it will indicate an area of major challenge for county colleges.

THREE-YEAR GRADUATION RATES FOR PUBLIC TWO-YEAR COLLEGES, BY RACE/ETHNICITY: N.J. COMPARED WITH NATIONAL DATA*



* Sources: NCES = National Center for Education Statistics, Minority Undergraduate Participation in Postsecondary Education, June 1995; N.J. = Student Unit Record Enrollment (SURE) data system. National data exclude Asians.

RETURN ON INVESTMENT IN HIGHER EDUCATION

Before discussing the return on New Jersey's investment in its colleges and universities, it is useful to describe the magnitude of that investment. Future reports will present a much more complete picture of the costs, funding levels, and payment burdens associated with higher education in New Jersey and elsewhere. The following analysis provides, among other things, a context for the tuition data presented earlier. Research Associates of Washington, DC developed a set of sophisticated indicators that address this issue for public institutions in the aggregate.[37] For example, one measure of the effort of state and local governments to fund public higher education is calculated as a ratio of appropriations per FTE student to

available wealth; New Jersey ranks 37th among the states. However, these data exclude state-funded student assistance, which is more extensive in New Jersey than in most other states. Calculating a ratio of net tuition per FTE student to personal disposable income per capita provides a measure of student/family effort; New Jersey ranks 34th. This measure is clearly affected by the high affluence of the state. Based on these two measures, New Jersey is somewhat below average on both government and family support of higher education. Moreover, New Jersey -- unlike many other states -- does not conform to the typical pattern of compensating for a below-average rank on one measure by being above average on the other. Consequently, on a combined indicator of family and government effort, New Jersey is considerably below average with a rank of 46th. On this performance indicator New Jersey is 22% below the national benchmark.

An examination of total institutional revenues, from all sources, per enrolled student[38] reveals that for the four-year public, two-year public, and four-year independent institutions, revenues are lower in New Jersey than in the nation as a whole. These data are available from IPEDS, the Integrated Postsecondary Education Data System.[39] (Published IPEDS sources do not distinguish between doctoral and nondoctoral public four-year institutions.) New Jersey public four-year institutions collect on average $13,800 in revenues per student per year; the national figure is $15,100. New Jersey public two-year institutions collect $3,200 in revenues; those across the nation collect $3,500. Finally, New Jersey independent institutions collect $16,700, as compared with $21,300 for the nation. (These figures are adjusted for New Jersey's 16% higher costs.)

Tuition/fees and state/local government funding are two major revenue streams for colleges and universities. A calculation of the ratio of tuition/fees to state/local government funding shows that New Jersey's four-year public institutions rely a little less heavily on tuition/fees than their national counterparts. New Jersey's four-year independents rely far less heavily on student tuition and fees. Community colleges, however, rely more heavily on tuition/fee income than is true for two-year publics nationally. This ratio is related to the state's policy on access and affordability.

Several performance indicators are used to measure the return on investments made by students, their families, and government in higher education. Many states, for example, study degree production. Comparisons are made among numbers of graduates, enrollments, dollars spent, and population size. Another source of information on institutional success is from surveys of students, alumni, and employers. "Consumers" of higher education report the extent of their satisfaction with particular institutions or with higher education in general. Other performance indicators, such as reduced poverty levels and increased tax collections, also suggest positive impacts from the resources spent on higher education. Affordability, preparedness, equity, etc. continue to be critical to understanding the implications of the various indicator data.

A. Higher Education's Contribution to Economic Development

In addition to their principal function of providing an educated workforce, colleges and universities engage in economic development through applied research, data dissemination/distribution centers, funding procurement, small business development centers, technology transfer, research consortia, advanced technology centers, and industrial extension centers.

The state's Advanced Technology Centers (ATCs), based at New Jersey's research universities, collaboratively conduct research and share technology with industry. Centers and bureaus housed at our universities conduct research and widely disseminate information on economic conditions, public policy, labor, government, and healthcare policy, to name but a few areas. Small business development centers located throughout the state at community colleges, independent colleges, and state colleges and universities provide technical assistance and technology transfer to the manufacturing, fisheries and aquaculture, polymers, agricultural, information services, and healthcare sectors. Incubators, sited at several research universities, provide start-up businesses with critical physical facilities, information on funding sources, and technical advice to enhance their chances for survival and success. Several universities provide patent/licensing assistance to businesses so that rights to intellectual property can be secured and exploited.

While it is virtually impossible to quantify in tangible terms the direct impact upon economic development represented by all these services, estimates of thousands of jobs being created or saved annually are realistic and probably conservative, and many of these jobs are with small, entrepreneurial companies that hold promise for future job growth.

The community colleges are heavily involved in training/retraining programs, particularly customized training for businesses, and the offering of continuing education/professional development courses. Small business development is another area of economic development where community colleges play a major role. Sixteen of the 19 community colleges have specific development centers reaching out to assist local businesses through counseling, seminars on topics of interest to business owners, and referral services to banks and government agencies. Many of the clients served engage in entrepreneurial endeavors.

Universities, both public and independent, offer a wide range of services to enhance economic development that capitalize on their strengths, particularly the research skills of their faculty. Professional services -- either through organized research bureaus, centers, or individual faculty effort--assist industry, businesses, and government (locally, statewide, and nationally). Universities are also major contributors of continuing education and professional development for individuals seeking to enhance their skills for continuing licensure or personal enrichment. Survey respondents indicated that such courses annually have enrollments of over 65,000. Moreover, these public and independent institutions attract companies and are major facilitators of technology transfer to key New Jersey industries such as the telecommunications, biotechnology, and pharmaceutical industries. They also provide technical assistance to industry through Advanced Technology Centers, business incubators, research parks, and patent/licensing offices.

State colleges are major centers for undergraduate education and advanced professional training. Actively engaged in the provision of continuing education and professional development, though to a lesser extent than the public university and community college sectors, the state colleges also provide small business development assistance. Faculty and staff, like their counterparts in other sectors, lend their expertise in consulting capacities for the benefit of industry and government.

While training and retraining programs are offered by all sectors of the state's higher education community, the community college sector is most active in this area, enrolling over 27,000 annually. A variety of state and federally sponsored programs are involved, including: JTPA, the Workforce Development Partnership Program, REACH, and the Network of Occupational Training and Education (NOTE). These programs are intended to assist individuals (e.g., displaced homemakers, welfare recipients, disadvantaged youth, the unemployed--both skilled and unskilled, etc.) and companies to meet their needs for occupational training and often basic literacy instruction.

B. Additional Benefits of Higher Education to Society

Reduced Likelihood of Being on Welfare: Across the United States the more education a person has, the less likely he or she is to be receiving Aid to Families with Dependent Children (AFDC) or public assistance. National data reveal that 17% of high school dropouts receive income from these sources; 6% of high school graduates who did not go on to college are receiving such aid; only one-half of one percent of college graduates do so.[40]

Increased Tax Collections: The dollars that the state and federal government spend on higher education are returned through taxes. Several recent state studies support investing in higher education. University of Massachusetts-Boston research revealed that for every dollar the Commonwealth spends on higher education, it can expect a return of $1.57 in personal income and state taxes. A California study found a $2.00 return for each dollar invested, and Texas showed a $1.13 impact for each higher education dollar. Even states with regressive tax structures receive positive returns.

Value Added for the Individual: As the following data[41] show, education increases the value of an individual in the job marketplace. The table displays income by highest level of schooling completed. (The figures are mean incomes for New Jersey's 18-and-older population, according to the 1990 Census.)

Less than 9th grade	$23,534
9th to 12th grade	$25,271
High school graduate	$27,987
Some college	$33,670
Associate degree	$33,434
Baccalaureate degree	$47,371
Master's degree	$59,970
Professional degree	$90,297
Doctoral degree	$67,939

C. Comparisons of New Jersey with Other States

1. Degrees Conferred Relative to Degree-Seeking Students

Four-year public institutions in New Jersey generate a ratio -- of bachelor's degrees produced in a given fiscal year per number of degree-seeking undergraduates enrolled in the fall of that year -- that places the state 23rd among the 48 contiguous states on this indicator. New Jersey community colleges have a ratio of associate degrees per number of degree-seeking students that ranks New Jersey 20th. Finally, ratio for the state's four-year independent institutions with a public mission ties New Jersey for 17th.[42]

2. Degrees Conferred Relative to Money Spent

Relating degrees and expenditure data for New Jersey senior public institutions (including bachelor's degrees and higher)[43] yields a figure that ranks New Jersey 16th among the 48 states; the community colleges' figure yields a similar rank position (17th). Finally, senior independent institutions in New Jersey rank 31st nationally.[44]

3. Degrees Conferred Relative to Population

The first table below shows that New Jersey produces fewer degrees relative to population size than other states; this pattern has been fairly stable for at least a decade. A portion of these results reflects the state's high rate of outmigrating college students, a factor discussed below. Defining New Jersey's optimal level of degree production for its population is not a simple matter. It may not be true that "more is better." Moreover, there may be a connection between the number of degrees produced per capita and the number of institutions per capita. Therefore the question of the optimal number of degrees may be linked to that of the optimal number of institutions. When comparing different states' degree production at a particular degree level, one must be sensitive to relevant qualitative differences among state systems; for example, other things being equal, systems with strictly regulated transfer articulation will tend to produce more associate degrees than other states.

RATIO OF DEGREES PRODUCED (FY92) PER 100,000 POPULATION (1990), BY DEGREE LEVEL: N.J. COMPARED WITH THE U.S. AND FOUR OTHER STATES*

	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
Associate	159	213	297	197	180	160
Bachelor's	313	466	539	541	465	495
Master's	102	143	230	142	100	135
Doctoral/First-Professional	35	47	63	49	37	42

* Sources: National Center for Education Statistics, FY 1992 earned degrees conferred by degree level and by state (IPEDS raw data, unpublished); Information Publications, Almanac of the 50 States, 1994 Edition (1990 census of the population). This and the next two tables include certificates, and awards granted by for-profit institutions.

The next two tables provide additional detail, by showing degree production in selected fields of study.

RATIO OF BACHELOR'S DEGREES PER 1,000 PUBLIC HIGH SCHOOL GRADUATES, BY SELECTED FIELD CLUSTERS: N.J. COMPARED WITH THE U.S. AND FOUR OTHER STATES*

	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
Business	76	105	117	124	99	96
Computer Science	8	10	15	10	9	9
Education	19	44	46	57	47	34
Engineering/Architecture	19	35	41	40	27	31
Health Sciences	12	25	29	36	23	20
Sciences/Mathematics	20	30	36	39	37	34

* Sources: National Center for Education Statistics, FY 1992 bachelor's degrees conferred by field and by state (IPEDS raw data, unpublished); Western Interstate Commission for Higher Education, High School Graduates: Projections for the 50 States, 1992 - 2009 (1988 high school graduates). Includes certificates, and awards by for-profits.

RATIO OF PREBACCALAUREATE DEGREES PER 1,000 PUBLIC HIGH SCHOOL GRADUATES, BY SELECTED FIELD CLUSTERS: N.J. COMPARED WITH THE U.S. AND FOUR OTHER STATES*

	N.J.	U.S.	N.Y.	Pa.	N.C.	Va.
Business	98	132	182	148	93	138
Computer Science	8	12	13	19	1	24
Education	3	6	5	10	3	5
Engineering/Architecture	11	26	24	34	24	41
Health Sciences	39	81	92	62	71	74
Sciences/Mathematics	1	2	1	1	3	3

* Sources: National Center for Education Statistics, FY 1992 associate degrees and prebaccalaureate certificates conferred by field and by state (IPEDS raw data, unpublished); Western Interstate Commission for Higher Education, High School Graduates: Projections for the 50 States (1990 high school graduates). Includes for-profits.

D. Student Satisfaction

Overall Student Satisfaction: Across New Jersey public and independent institutions, slightly under two-fifths of the students describe themselves as very satisfied with their college experiences. When those who are somewhat satisfied are added to this group, positive responses reach 90 %.[45] Part-time students are slightly more satisfied than full-timers. Students at independent colleges and universities are more likely to be very satisfied than those at public institutions; the three public sectors draw satisfaction ratings that are similar to each other.

Student Satisfaction and Living on Campus: Full-time students who live in a dormitory are more likely to express very high levels of satisfaction than those who do not. Part-time students who live away from home are more satisfied than those who live with parents/relatives.

Student Satisfaction While Working and Attending College: Full-time students who are not employed are more satisfied than the few who hold full-time jobs. Part-time students with part-time jobs are the most

satisfied; the small number of part-time students who are not employed at all are considerably less satisfied than any of the other groups.

Students Who Choose Not to Attend New Jersey Colleges and Universities: New Jersey's high "outmigration" (36%) and low "inmigration" (8%) rates for college students are equally extreme -- the fourth highest and lowest, respectively, among the 48 contiguous states. In other words, although a large proportion of New Jersey residents attend college elsewhere, the proportion of students that come here from other states is small.

New Jersey is ranked number one in terms of population density and number two in per capita income. Both density and income are linked by common wisdom to the high college student outmigration rate. Moreover, the state's small land area (New Jersey ranks 45th out of the 48 states) and the large number of institutions within 30 miles of its borders seem significant. However, statistical analysis suggests that the reason so many New Jerseyans leave the state for their college education is that the state's relative affluence and small size makes it especially easy for them to do so. Further, that analysis shows that population density is not a factor.

In contrast to the above analysis of outmigration, the low inmigration rate is harder to explain. First, there is a positive relationship nationally between the two migration rates. In general, states with relatively high proportions of their college students enrolled in other states tend also to enroll relatively large numbers of other states' college students. New Jersey is an exception, perhaps in part due to past state policy decisions limiting the enrollment of out-of-state students at public institutions.

E. Alumni Satisfaction

Overall Satisfaction: Systemwide and for each collegiate sector, satisfaction levels of New Jersey college alumni are even higher than those of current students. About half of all recent graduates surveyed in 1992-93 report that they are very satisfied with their college experiences; another 44% are somewhat satisfied.[46] Alumni of independent institutions are the most likely to report being very satisfied, followed by those of the community colleges, but satisfaction levels are high in all sectors.

How Graduates Think College Helped Them Get Jobs: Two-fifths of the alumni survey respondents said that both the degrees they earned and what they learned helped them land their current jobs; another 20% cited only the former. The propensity for graduates to credit both factors is fairly uniform across the sectors. However, community college alumni are at least twice as likely as other alumni to report holding the same job as before graduation.

The survey reveals some striking differences by field of study. Alumni who majored in the health sciences are by far the most likely to cite both the degree and what they learned as important job placement factors--more than 70% did so. Relatively high proportions of education majors and of those with degrees in scientific/technical fields (about one-half or more) also named both factors. Business graduates are somewhat less positive in this regard, but more so than those who majored in any of the humanities fields. The connection of humanities degrees to job requirements may simply be more subtle and indirect, though ultimately not less important.

F. Employer Satisfaction

A core issue facing higher education is how to enhance the connection between academic programs and work place performance, because closer alliances with business, based on shared goals and clearer understandings about labor force needs, contribute to economic well-being. A recent statewide survey[47] polled more than 400 New Jersey employers to find out what they want from college graduates, to explore better ways of linking college-based preparation with employers' workforce needs, and to consider how the training services that colleges provide to employed workers might be improved.

The survey revealed a mix of fairly positive assessments of higher education and concerns about the quality of college graduates. For example, employers say that colleges do a good -- but not an excellent -- job preparing graduates for the work place; they say that graduates could be better prepared, in that they may not have the skills employers value most. Employers overwhelmingly endorse experience-based learning programs, such as internships and cooperative education, but they also want greater input in the design of academic curricula. Employers want more involvement generally in the design of training courses, and they expect colleges and universities to be flexible in responding to their needs; they are not interested in the formal testing of graduates.

CONCLUSIONS

Annual accountability reports are a way of taking the pulse of the higher education system. This year, the Commission on Higher Education set out to provide systemwide information for the public and for state policymakers, and to set a baseline for future years. The portrait drawn of New Jersey's system provides strong evidence of its successes as well as challenges.

A. Major Policy Questions

The report raises the following major policy issues, which will be addressed through statewide planning efforts as the Commission, Presidents' Council and institutional boards of trustees work collaboratively to ensure that New Jersey's system of higher education effectively and efficiently meets state needs.

- **Access/affordability and productivity:** There is a trade-off between (a) maximizing access/affordability, which means spending more per student, and (b) maximizing productivity, which means spending less per graduate. What is the appropriate balance for New Jersey?

- **Equity of access and outcomes:** New Jersey is more successful than many states in enrolling and graduating minority students. But there are still significant differences between outcomes for these students and those for white students. What additional or revised strategies should be implemented to achieve greater equity?

- **Undergraduate education vs. research/graduate education:** During the last decade or so, state higher education policies have focused primarily on undergraduate education. This report reminds policymakers of the economic importance of university-based research. While highlighting progress made by the research universities in obtaining research funding, it also demonstrates the very stiff

competition that New Jersey faces from other states. In light of these considerations, do current state policies sufficiently recognize the impact of university-based research on economic development?

- **Outmigration:** The impact of New Jersey's high rate of outmigration is visible at various points in the report. Clearly, this phenomenon is a fundamental and pervasive feature of the state's higher education system. Is it a problem which the state needs to address?

B. Future Accountability Reports

Future reports must use existing data sources more thoroughly and systematically to answer fundamental questions regarding the funding, cost, and productivity of higher education in New Jersey. New data elements may need to be created for this purpose. In addition, there is now a lag between the most sophisticated thinking that is taking place throughout the country regarding the measurement of higher education's performance, on the one hand, and the quantitative indicators that are currently available for analysis and reporting, on the other. Consequently there is a need for New Jersey's higher education leaders and policy makers to consider the use of new indicators and to set in motion the actions and processes that will produce better data according to these indicators.

ENDNOTES

[1] Most of this report's data on enrolled students, degrees conferred, outcomes, and faculty are mathematically equivalent to what would have been obtained by computing weighted averages of the corresponding institutional statistics. Of course, the aggregate numbers were produced in a more efficient manner -- by running computer programs on sectorwide or systemwide data bases. *But it is important to understand that these are the same programs that produced the institutional data.* The organization and formatting of the data here are different from what was done in most of the institutional reports, but this is a function of differences in purpose, e.g., this report's intended use in master planning.

This report does include data and analyses beyond what the colleges reported this year in their accountability reports, but not significantly beyond what they have agreed to include in future years. The "extra" material is consistent with guidelines for systemwide reports that were developed by the Presidents' Council's Committee on Excellence and Accountability and approved by the Commission on Higher Education. For example, these guidelines call for data on student/alumni/employer satisfaction and return on investment, all of which are included here but not yet, for the most part, in the institutional reports. Another difference in content is that while the institutional reports do not make extensive use of benchmarking, this report does. Colleges and universities may carry out their own benchmarking in the future.

[2] One useful resource for reviewing some model higher education accountability reporting systems is Assessing Performance in an Age of Accountability: Case Studies, Gerald H. Gaither editor, New Directions for Higher Education, no. 91, Volume XXIII, Number 3, Jossey-Bass Inc., 1995.

[3] See "Pointing the Way: Indicators as Policy Tools in Higher Education," by Peter T. Ewell and Dennis P. Jones, in Charting Higher Education Accountability: A Sourcebook on State-Level Performance Indicators, Sandra S. Ruppert, editor, Education Commission of the States, 707 17th Street, Suite 2700, Denver, Colorado 80202-3427. Ewell and Jones describe four general approaches to developing performance indicator systems for accountability: inputs/processes/outcomes, resource efficiency and effectiveness, state need and return on investment, and "customer" need and return on investment.

[4] The joint commission was created by the American Association of State Colleges and Universities, the American Association of Community Colleges, and the National Association of State Universities and Land-Grant Colleges. See A Need Answered: An Executive Summary of Recommended Accountability Reporting Formats.

[5] For this report the noun "system" refers to the entire set of colleges and universities in New Jersey, viewed as a single entity; the adjective "systemwide," accordingly, means "of or pertaining to the system." These terms are not intended to imply either that a particular degree of coordination or integration exists, or that a particular configuration is desirable.

[6] The 56 include Upsala College, which closed in May 1995. The current number of institutions still totals 56, with the addition of Philadelphia College of the Bible's New Jersey campus.

[7] Future accountability reports will present data for the independent sector according to these subcategories. The current report presents data for all independent institutions in some instances, and for just the four-year independent colleges and universities in others. Data on enrollments, degrees, faculty, and finances are available for all the sector's institutions and are comparable to those for public institutions; sectorwide student outcomes data, however, are not available.

[8] The term "occupational/professional fields" is not synonymous with "vocational degrees/certificates", although the former encompasses fields where the latter typically are awarded, it also includes scientific and technical fields where students may prepare for *either* immediate employment *or* further study.

[9] The term "graduate level" includes master's and doctoral, as well as first-professional degrees (in fields like law, medicine, dentistry, and the theological professions); the first-professional awards contribute significantly to the preponderance of occupational programs at this level.

[10] Source: American Council on Education Research Brief, 1995.

[11] The most recent IPEDS staffing data show an additional 11,542 part-time faculty and teaching assistants (TAs) systemwide in fall 1993. The American Association of Community Colleges reports in National Profile of Community Colleges: Trends and Statistics, 1995-1996 that about two-thirds of fall 1993 community college faculty, both nationally and in New Jersey, were part-timers.

However, the extent to which IPEDS data on part-time faculty include adjuncts is unclear. The most recent statistics on adjunct faculty usage in New Jersey higher education (from a survey by the former Department of Higher Education) date from the 1992-93 academic year, when about 7,400 adjuncts taught one-third of all undergraduate course sections at public colleges and universities (excluding UMDNJ); data on part-time faculty and TA usage are not available.

[12] Research efforts at other independent institutions seek to advance business and technology, and to improve urban education and protect the New Jersey coastline. All are critical issues that affect local, state, and global arenas and highlight the public mission of independent colleges and universities.

[13] The community college tuition numbers in the first table refer to in-county tuition, those in the second table refer to in-state (but out-of-county) tuition, which is higher. While the former represents what most students experience, only the latter is available for the nation in convenient published sources. States with relatively high in-state tuition also tend to have relatively high in-county tuition. The published data presented in the second table on page 21 include not only community colleges, but also a relatively small number of two-year public postsecondary institutions that do not grant degrees (the New Jersey data include two such institutions). The latter generally have lower tuitions than community colleges.

[14] The former Board of Higher Education commissioned the Eagleton Institute of Politics at Rutgers University to poll New Jersey college students regarding their satisfaction with their college experiences. Eagleton surveyed (by mail, during 1992-93) random samples of both current enrollees and recent alumni from every collegiate sector in New Jersey. The current student survey universe consisted of fall 1992 undergraduates, the alumni survey, of graduates during the preceding three academic years (bachelor's graduates from senior institutions, and associate, from two-year colleges).

[15] Postsecondary Education Opportunity, August 1995, reporting on data from the annual American Council on Education/UCLA Freshman Survey.

[16] A national sample of 1,000 registered voters polled in January 1995; results reported by The Alliance to Save Student Aid.

[17] Source: National Association of State Scholarship and Grant Programs, NASSGP 25th Annual Survey Report, May 1994, pp. 110-112.

[18] Source: Data compiled by the N.J. Commission on Higher Education in cooperation with the N.J. Office of Student Assistance. The state's merit award programs are the Garden State, Bloustein Distinguished, and Urban Scholarships. NJCLASS is the New Jersey College Loans to Assist State Students program.

[19] New Jersey's freshman SAT data include the scores of regular and special, but not EOF, admits; the latter, who comprise 12% of the students, tend to score lower than the other two admit categories. Had the EOF admits been included, New Jersey's enrolled freshmen still would have scored higher than the state and national test-taking populations. (These broader groups of students include non-college-bound individuals, who generally score lower than those planning to attend college. At the same time, the data on enrollees do not include high-scoring New Jersey students attending out-of-state colleges.)

[20] These are cohort-based college outcomes. The term "cohort" refers to a group of individuals with certain characteristics in common who are tracked over time to determine certain incidences among them; here the cohorts are comprised of full-time first-time degree-seeking students, and incidences of retention, graduation, etc. are being determined. The New Jersey graduation rates presented in this report are for fall 1988 and fall 1990 cohorts (at the senior public institutions and the community colleges, respectively), and the retention rates are for fall 1993 cohorts (in both sectors); the cohorts were tracked through the New Jersey Student Unit Record Enrollment (SURE) system. This report also presents national data drawn from various sources and based on various methodologies that are not entirely comparable with those for New Jersey, although they were the most current and appropriate data available when the report was being prepared.

[21] Eagleton student/alumni satisfaction survey; see note #14.

[22] These are the state colleges (and teaching university) excluding Thomas Edison State College, and the public research universities excluding the University of Medicine and Dentistry of New Jersey (UMDNJ). Edison does not enroll any full-time first-time freshmen, the type of students tracked in calculating graduation and retention rates. UMDNJ enrolls primarily graduate and first-professional students; most of its few first-time freshmen are in joint programs with other New Jersey institutions.

[23] These comparisons are made with caution, since the national data are based on a methodology (a survey of recent college graduates) that is very different from New Jersey's student tracking system. Also, that system does not yet have enough years of data on the public universities to compute time-to-completion rates at those institutions.

[24] This conclusion flows from the similarity between New Jersey's community college graduation rate and that for the nation (according to one data source), and our middle ranking among the four states for which we have data on graduation rates.

[25] The NCES data are from a longitudinal survey of a sample of students; this is not the same as a unit-record cohort tracking system, such as New Jersey's.

[26] Two national surveys of institutions (by the CEEB and the ACT), both of which suffer from low response rates on the question pertaining to community college graduation rates, report three-year graduation rates that are considerably higher than those we see in New Jersey.

[27] Eagleton student/alumni satisfaction survey; see note #14.

[28] National Center for Education Statistics, Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992-93, p. 86; data are self-reported, from a survey of a national sample of undergraduates.

[29] Postsecondary Education Opportunity, No. 41, November 1995, reporting on data from the U.S. Census Bureau's October 1994 Current Population Survey.

[30] Relatively small numbers of African-Americans and Hispanics with graduate degrees, who constitute the basic pool from which colleges may recruit for faculty positions, contribute to small percentages of minority faculty.

[31] Research Associates of Washington, Three Rs: Race Retention Rates by State, October 1994.

[32] New Jersey's high outmigration rate of beginning college students to other states, to be discussed in the next section of this report, is not likely to affect significantly the relative statistics for white and minority students.

[33] New Jersey's index value of 109 compares with 100 for the nation as a whole; the 45 states' figures range from 83 to 115.

[34] These are cohort-based college outcomes (see note #20), as distinct from the aggregate-data-based calculations discussed in the previous analysis.

[35] For each racial/ethnic group, students across the nation appear more likely than New Jersey students to take either a very short (four years or less) or a relatively long (six years or more) time to complete a degree. However, this finding is made with caution, because the state and national methodologies differ. For New Jersey, 1994 baccalaureate graduates were reverse-tracked to their entering fall semesters through the Student Unit Record Enrollment (SURE) system; U.S. data are from a postgraduation sample survey of 1990 baccalaureate graduates (as reported in Postsecondary Education Opportunity, July 1994). Also, the U.S. data are for all senior institutions, including public research universities and independent colleges and universities, whereas ours are just for the state colleges/teaching university. This is especially problematic because the parallel comparison, on overall outcomes, was with all senior public institutions nationally (so it was somewhat more comparable than here).

[36] These comparisons, too, are made with caution, because the national data are sketchy and were produced by a very different methodology; also, there are no U.S. data on Asians.

[37] State Profiles: Financing Public Higher Education -- 1978 to 1994. Dollar amounts are adjusted for differences among states in the cost of doing business and in the enrollment mix (i.e., the distribution of students among the lower-division undergraduate, upper-division undergraduate, and graduate levels).

[38] The enrollment data used here are headcounts, not FTEs (full-time equivalent enrollments); no distinction is made between full- and part-time students.

[39] Sources: National Center for Education Statistics, Current Funds Revenues and Expenditures of Institutions of Higher Education, Fiscal Years 1985 through 1993, July 1995, pp. 15-17 (fiscal data); National Center for Education Statistics, Digest of Education Statistics, 1994, October 1994, p.197 (headcount enrollments); adjusted for cost of government (see Research Associates of Washington, State Profiles: Financing Public Higher Education, 1978 - 1994, October 1994, p. 21).

[40] Source: National Center for Education Statistics (NCES), The Condition of Education, 1995, May 1995 (as shown in "Indicator of the Month," NCES 95-787, July 1995).

[41] Source: American Association of Community Colleges, The 1995-96 AACC Annual, August 22, 1995, p. 50.

[42] When one applies a statistical model in which enrollments "predict" degrees conferred, New Jersey's four-year public institutions confer 25% more degrees than they would according to the model. The state's community colleges confer almost exactly what the model predicts, and similarly for the four-year independent institutions.

[43] Because the expenditure data do not distinguish between undergraduate and graduate students, graduate degrees are included, where applicable (for senior institutions); although some senior institutions award associate degrees, those awards are not included in this analysis.

[44] When one uses dollars spent to predict degrees conferred, all three New Jersey sectors outperform -- that is, confer more degrees than -- what the model would predict: four-year public institutions, by 11%; community colleges, by 25%; and four-year independent institutions, by 9%.

[45] Source: Eagleton student/alumni satisfaction survey; see note #14. Because "somewhat satisfied" is a lukewarm endorsement, the analyses in this report distinguish sharply between "very" and "somewhat" satisfied, focusing primarily on the former.

[46] Source: Eagleton student/alumni satisfaction survey; see note #14. As noted earlier, the analyses in this report focus primarily on the percentages who are "very" satisfied.

[47] January 1995 survey, conducted by the Eagleton Institute of Politics (Rutgers University) for the New Jersey Business-Higher Education Forum.

APPENDIX A - Table 1

NUMBER OF DEGREE PROGRAMS OFFERED BY N.J. INSTITUTIONS OF HIGHER EDUCATION BY DEGREE LEVEL AND TYPE OF INSTITUTION
(as of October 1995)

DEGREE LEVEL/DEGREE TITLE	Community Colleges	State Colleges/ Teaching University	Public Research Universities	Independent Institutions AICUNJ	Independent Institutions Other	TOTAL PROGRAMS
Associate	467	8	4	26	13	518
A.A.	35	1	0	18	1	55
A.A.S.	343	1	1	3	11	359
A.S.	87	3	2	5	0	97
Other	2	3	1	0	1	7
Bachelor's	0	318	454	450	5	1,227
B.A.	0	177	315	268	0	760
B.S.	0	114	133	125	0	372
Other	0	27	6	57	5	95
Master's	0	141	227	259	5	632
M.A.	0	82	27	108	2	219
M.B.A.	0	3	4	26	0	33
M.S.	0	15	103	48	0	166
Other	0	8	62	51	3	124
Other (Education)*	0	33	31	26	0	90
Doctorate	0	0	116	77	2	195
ED.D.	0	0	14	3	0	17
PH.D.	0	0	98	73	1	172
Other	0	0	4	1	1	6
First-Professional	0	0	6	5	6	17
D.M.D.	0	0	1	0	0	1
J.D.	0	0	2	1	0	3
M.D.	0	0	1	0	0	1
Other	0	0	2	4	6	12
TOTAL NUMBER OF PROGRAMS	**467**	**467**	**807**	**817**	**31**	**2,589**

SOURCE: N.J. Commission on Higher Education, Inventory of Degree Programs and Options.
Table does not include 447 certificate programs, at various degree levels, and 24 Ed.S. programs.

* "Other (Education)" includes M.A.Ed.'s, M.A.T.'s, M.Ed.'s, M.S.Ed.'s, and M.S.T.'s.

On Table 2 of APPENDIX A: The fields are broad programmatic categories found in the Classification of Instructional Programs (CIP), 1990 Version (Revised), published by U.S. Department of Education, National Center for Education Statistics.

NUMBER OF DEGREE PROGRAMS OFFERED BY N.J. INSTITUTIONS OF HIGHER EDUCATION BY FIELD OF STUDY AND TYPE OF INSTITUTION (as of October 1995)

FIELD* (see note on Table 1)	Community Colleges	State Colleges/ Teaching University	Public Research Universities	Independent Institutions: AICUNJ	Independent Institutions: Other	TOTAL PROGRAMS
AGRICULTURAL BUSINESS & PRODUCTION	5	0	1	2	0	8
AGRICULTURAL SCIENCES	1	0	12	0	0	13
CONSERVA+B31. & RENEW. NATURAL RESOUR	1	6	10	2	0	19
ARCHITECTURE & RELATED PROGRAMS	1	0	8	4	0	13
AREA, ETHNIC & CULTURAL STUDIES	1	3	35	15	0	54
MARKETING & DISTRIBUTION	7	0	0	2	1	10
COMMUNICATIONS	1	7	11	10	0	29
COMMUNICATIONS TECHNOLOGIES	8	0	0	0	0	8
COMPUTER & INFORMATION SCIENCES	14	10	23	22	1	70
PERSONAL & MISCELLANEOUS SERVICES	2	0	0	0	0	2
EDUCATION	14	138	46	78	0	276
ENGINEERING	11	6	68	65	0	150
ENGINEERING-RELATED TECHNOLOGIES	72	5	2	4	1	84
FOREIGN LANGUAGES & LITERATURES	0	17	72	48	0	137
HOME ECONOMICS	2	3	4	3	0	12
VOCATIONAL HOME ECONOMICS	5	0	0	0	0	5
LAW & LEGAL STUDIES	12	2	2	1	1	18
ENGLISH LANGUAGE & LITERATURE/LETTERS	0	12	21	27	0	60
LIBERAL ARTS/GENERL STUDIES/HUMANITIES	28	9	2	24	2	65
LIBRARY SCIENCE	0	2	6	0	0	8
BIOLOGICAL SCIENCES/LIFE SCIENCES	4	19	106	41	0	170
MATHEMATICS	1	12	32	30	0	75
MULTI/INTERDISCIPLINARY STUDIES	4	7	27	15	0	53
PARKS, RECREATION, LEISURE & FITNESS	1	3	0	2	0	6
PHILOSOPHY & RELIGION	0	8	14	30	0	52
THEOLOGICAL STUDIES/RELIG. VOCATIONS	0	0	0	14	18	32
PHYSICAL SCIENCES	5	26	54	57	0	142
SCIENCE TECHNOLOGIES	13	0	0	0	0	13
PSYCHOLOGY	0	13	16	38	0	67
PROTECTIVE SERVICES	27	6	5	4	0	42
PUBLIC ADMINISTRATION & SERVICES	10	8	13	14	0	45
SOCIAL SCIENCES	4	44	78	85	0	211
CONSTRUCTION TRADES	1	0	0	0	0	1
MECHANICS & REPAIRERS	2	0	0	0	0	2
PRECISION PRODUCTION TRADES	13	0	0	0	0	13
TRANSPORTATION & MATERIAL MOVING	4	0	0	0	0	4
VISUAL & PERFORMING ARTS	10	41	41	51	1	144
HEALTH PROFESSIONS & RELATED SCIENCES	85	31	46	36	0	198
BUSINESS MANAGEMENT/ADMIN. SERVICES	98	29	52	93	6	278
TOTAL NUMBER OF PROGRAMS	**467**	**467**	**807**	**817**	**31**	**2,589**

* The fields are broad programmatic categories; see note on Appendix A - Table 1 for further explanation.

APPENDIX B

STUDENT AID FOR FULL-TIME UNDERGRADUATES (FTUs) AT N.J. INSTITUTIONS OF HIGHER EDUCATION: BY AID SOURCE, SYSTEMWIDE AND BY SECTOR*

	STATE:				FEDERAL:			INSTITUTIONAL:	
	TAG	EOF	Merit Awards	NJCLASS Loans	Grants	Loans	Work-Study	Grants/ Scholarships	Loans
Public Research Universities:									
No	11,044	2,727	5,147	236	12,677	14,949	3,567	8,531	121
Pct. of FTUs	35%	9%	16%	1%	40%	47%	11%	27%	0%
$(000)	$32,518	$2,512	$3,959	$1,272	$16,416	$35,660	$4,297	$15,375	$284
Avg. Award	$2,944	$921	$769	$5,390	$1,295	$2,385	$1,205	$1,802	$2,347
State Colleges/Teaching University:									
No	13,131	3,490	2,682	230	16,076	16,567	2,373	2,815	0
Pct. of FTUs	33%	9%	7%	1%	41%	42%	6%	7%	0%
$(000)	$24,866	$3,097	$2,135	$975	$20,605	$44,287	$2,577	$4,780	$0
Avg. Award	$1,894	$887	$796	$4,239	$1,282	$2,673	$1,086	$1,698	---
Community Colleges:									
No	15,386	3,821	246	11	33,416	5,871	1,695	2,939	18
Pct. of FTUs	28%	7%	0%	0%	61%	11%	3%	5%	0%
$(000)	$19,323	$2,423	$211	$32	$40,289	$11,044	$2,092	$1,785	$11
Avg. Award	$1,256	$634	$858	$2,909	$1,206	$1,881	$1,234	$607	$611
Independent Institutions:									
No	10,199	1,900	1,992	313	15,610	27,970	4,955	16,778	3,522
Pct. of FTUs	34%	6%	7%	1%	52%	93%	16%	56%	12%
$(000)	$41,709	$3,655	$1,728	$1,821	$20,911	$77,546	$5,141	$76,177	$3,834
Avg. Award	$4,090	$1,924	$867	$5,818	$1,340	$2,772	$1,038	$4,540	$1,089
System Total:									
No	49,760	11,938	10,067	790	77,779	65,357	12,590	31,063	3,661
Pct. of FTUs	32%	8%	6%	0%	50%	42%	8%	20%	2%
$(000)	$118,416	$11,687	$8,033	$4,100	$98,221	$168,537	$14,107	$98,117	$4,129
Avg. Award	$2,380	$979	$798	$5,190	$1,263	$2,579	$1,120	$3,159	$1,128

* SOURCES: For state programs, N.J. Office of Student Assistance; data are for the 1994-95 academic year. For federal and institutional programs, N.J. IPEDS Form #41, "Student Financial Aid"; data are for the 1993-94 academic year.